Utah Water Supply Outlook Report

May 1, 2021

View of Mt. Timpanogos from the Alpine Loop Scenic Byway

Photo by Dave Eiriksson

Water Supply Outlook Reports
and Federal - State - Private Cooperative Snow Surveys

For more water supply and resource management information, contact: your local Natural Resources Conservation Service Office or:
Snow Surveys
245 N Jimmy Doolittle Rd, SLC Utah, 84116. Phone (385)285-3118
Email Address: jordan.clayton@usda.gov

How forecasts are made

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snowcourses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in statistical and simulation models to prepare runoff forecasts. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

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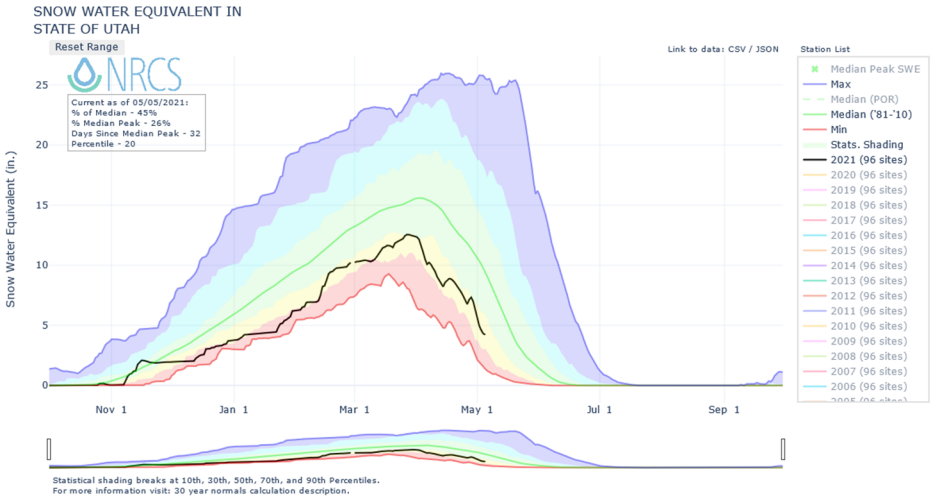
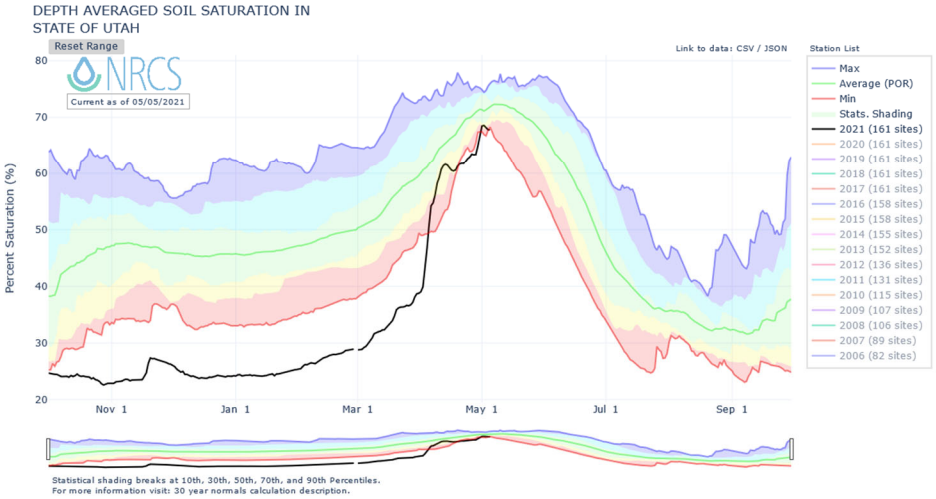
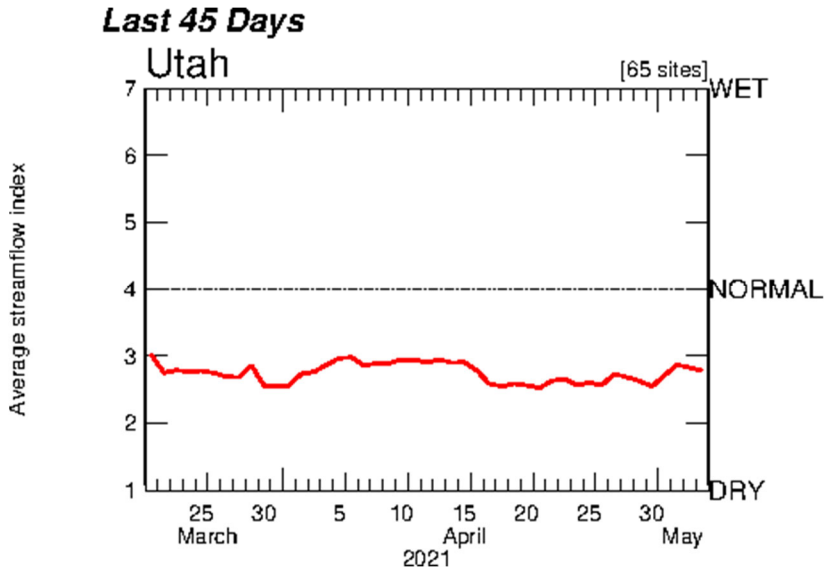
STATE OF UTAH GENERAL OUTLOOK
May 1, 2021

SUMMARY

This Water Supply Outlook Report (WSOR) is the final WSOR for the year. Throughout the winter and early spring we have been cautioning that Utah's poor snowpack conditions, extremely dry soils, lagging precipitation, and low antecedent streamflow were likely to hamper runoff conditions, and our streamflow forecasts have been correspondingly pessimistic. We have been concerned about the high likelihood that a significant portion of this year's snowmelt runoff would soak into headwater soils and not make it to downstream reservoirs. Unfortunately, we are now seeing that reality unfold. Shown below are graphs illustrating statewide conditions: the top graph shows the snow water equivalent (SWE) for this year (black line) relative to normal (green line), the middle shows the same for the state's soil moisture levels, and the bottom shows the streamflow response as an index of all the gage locations in Utah for the last 45 days (from the USGS). Note that as SWE has dropped, infiltration has caused the soil moisture to increase. However, at the same time there has been a minimal response in Utah's streams (bottom graph), showing that, as feared, most of the water being delivered from our snowpack is staying in the headwaters and not producing a significant runoff response. Certainly, some runoff can be anticipated in our region's riverways, but this is why runoff forecasts have persistently been so low this year. Sadly, this month's predictions are no exception.







Utah's streamflow forecasts for April to July snowmelt runoff volume are generally between 20% and 60% of average, with some even as low as <15%. When combined with Utah's reservoir storage being down 15% from last year (currently at 69% of capacity), the resulting Surface Water Supply Indices for Utah basins are extremely low. All of Utah's SNOTEL sites are now either melting quickly or are already dry. As of May 1st, the statewide SWE was 52% of normal, with multiple southern Utah watersheds well below 20%. April precipitation was much below average at 58%, bringing the water-year-to-date precipitation value down to 69% of average.

Water managers should prepare for exceptionally poor to (potentially) worst-on-record water supply conditions for this summer, depending on which region of the state they manage. Furthermore, soil temperature conditions are quite high in many locations across the state—including several that are record highs—which underscores the potential for a severe fire season in addition to other natural resource concerns.

SNOWPACK

Statewide snowpack is much below normal at 52% compared to 78% last year.

PRECIPITATION

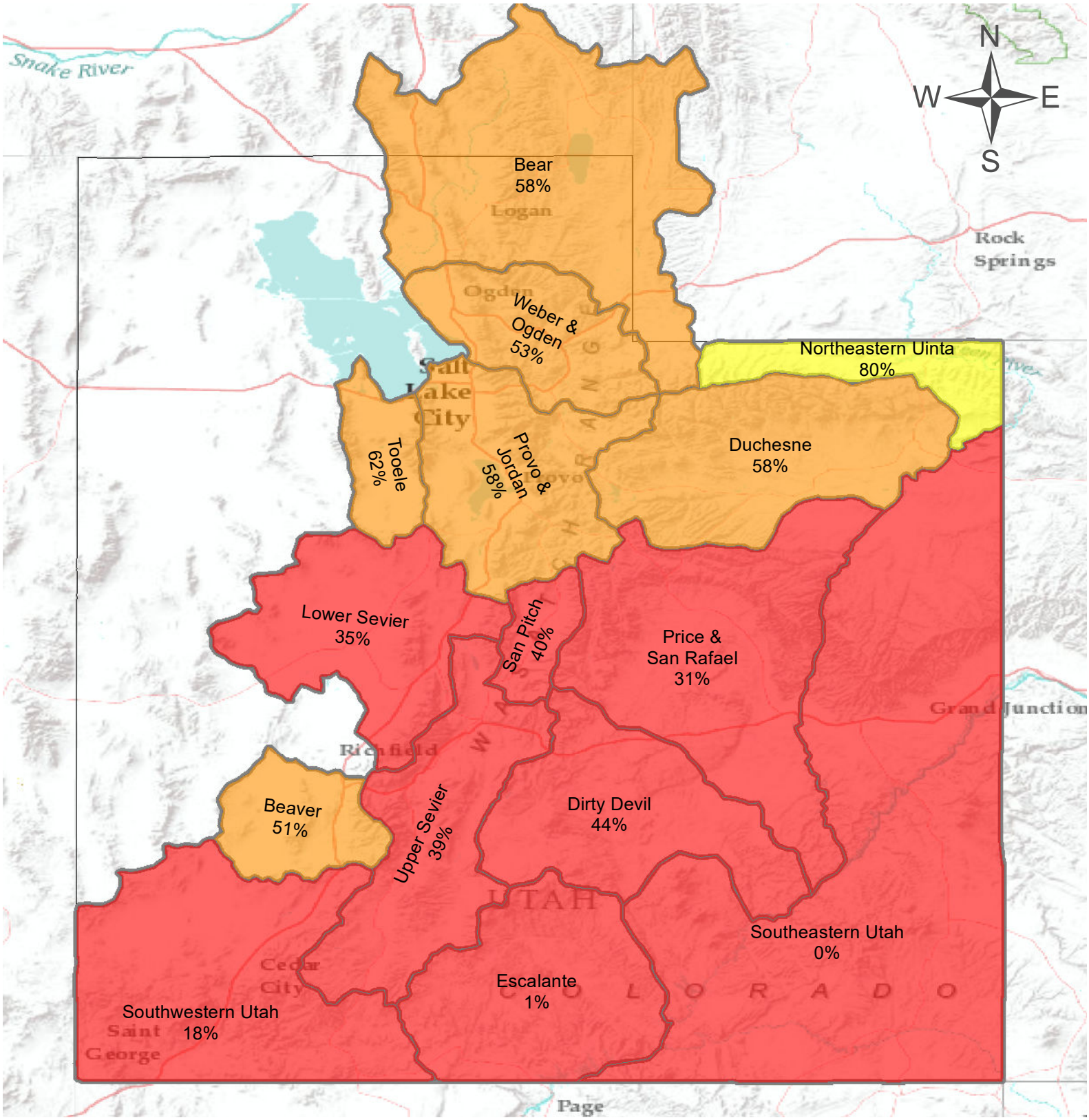
April precipitation across the state was much below average at 58%, which brings the seasonal accumulation (Oct-Apr) to 69% of average.

RESERVOIRS

Reservoir storage is at 69% of capacity statewide compared to 84% last year.

STREAMFLOW

Streamflow forecasts for both the April to July and May to July periods are for well-below normal runoff, with extremely low flow (<20% of average) predicted for some locations.



Statewide Snow Water Equivalent

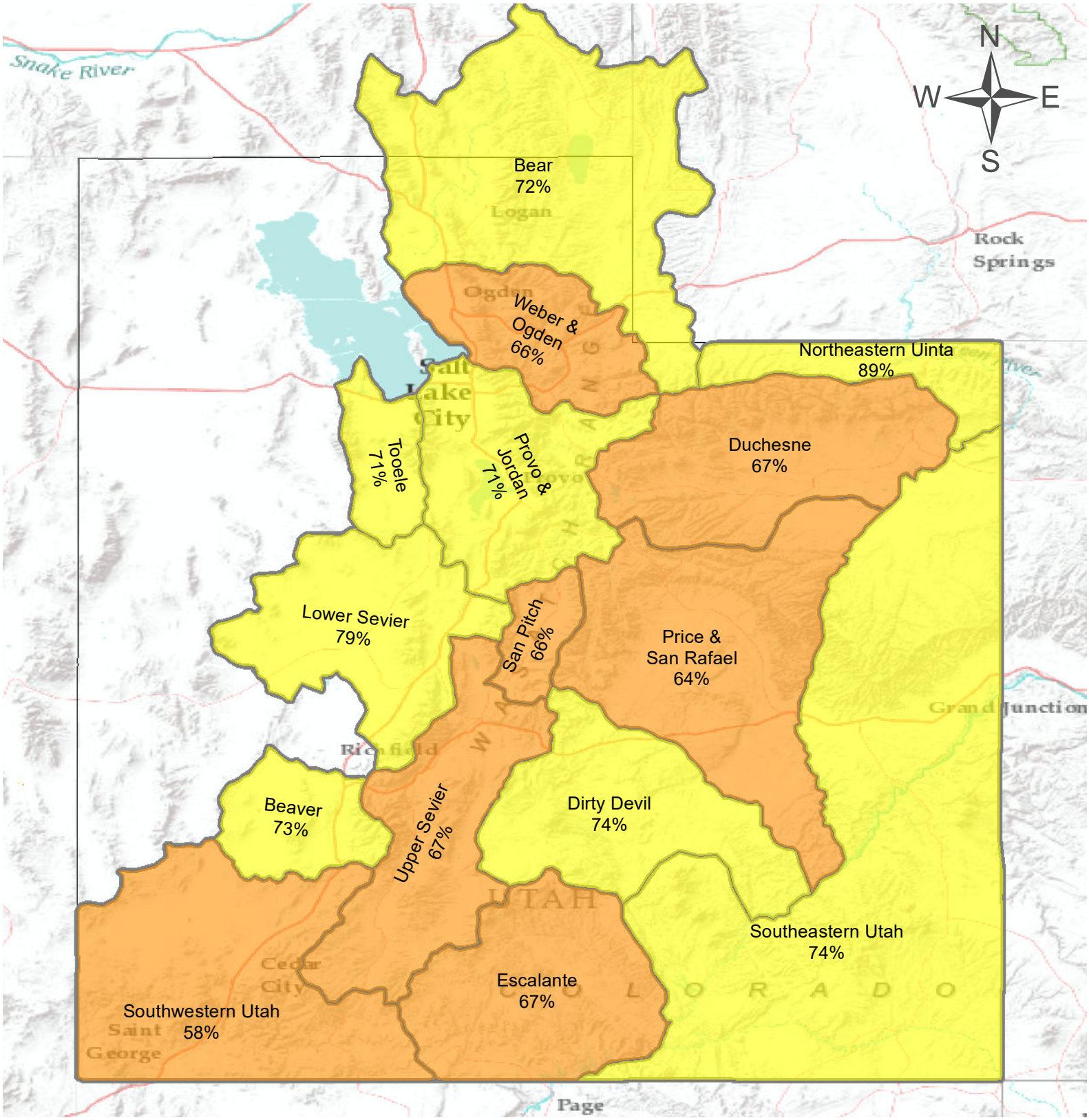
As of May 1, 2021:

52% of Normal Snow Water Equivalent

0 10 20 40 60 80 100
Miles

% of Normal

- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- > 150%



Statewide Precipitation

As of May 1, 2021:

69% of Normal Precipitation

59% of Normal Precipitation Last Month

0 10 20 40 60 80 100
Miles

% of Normal

- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- > 150%

May 1, 2021

Surface Water Supply Index

Basin or Region	Apr EOM* Storage	MAY-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF ^	*KAF ^*	*KAF ^*	*%*		
Bear River	**833.1**	**13.0**	**846.1**	**52**	**0.2**	**96, 01, 13, 81**
Woodruff Narrows	**26.5**	**62.0**	**88.5**	**10**	**-3.37**	**01, 04, 13, 03**
Little Bear	**14.6**	**6.6**	**21.2**	**3**	**-3.89**	**15, 04, 01, 13**
Ogden River	**70.5**	**36.0**	**106.5**	**19**	**-2.58**	**81, 90, 01, 15**
Weber River	**273.8**	**57.0**	**330.8**	**5**	**-3.77**	**15, 13, 04, 07**
Provo River	**1000.7**	**43.0**	**1043.7**	**18**	**-2.68**	**03, 15, 14, 02**
Western Uinta	**179.0**	**62.0**	**241.0**	**33**	**-1.39**	**03, 08, 10, 18**
Eastern Uinta	**26.5**	**29.3**	**55.8**	**7**	**-3.57**	**02, 14, 18, 89**
Blacks Fork	**8.4**	**50.0**	**58.4**	**5**	**-3.74**	**02, 07, 94, 00**
Smiths Fork	**4.5**	**17.0**	**21.5**	**13**	**-3.1**	**94, 04, 07, 89**
Price River	**36.8**	**9.7**	**46.5**	**29**	**-1.79**	**03, 89, 94, 07**
Joe's Valley	**37.4**	**15.8**	**53.2**	**2**	**-3.97**	**02, 13, 90, 89**
Ferron Creek	**4.0**	**11.5**	**15.5**	**5**	**-3.77**	**18, 13, 12, 02**
Moab	**0.7**	**2.0**	**2.7**	**20**	**-2.5**	**90, 89, 09, 20**
Upper Sevier	**57.9**	**17.0**	**74.9**	**2**	**-3.97**	**04, 91, 90, 18**
San Pitch	**0.0**	**8.1**	**8.1**	**5**	**-3.77**	**18, 15, 16, 02**
Lower Sevier	**85.2**	**38.0**	**123.2**	**14**	**-2.98**	**17, 92, 15, 02**
Beaver River	**8.8**	**7.8**	**16.6**	**5**	**-3.77**	**02, 18, 04, 90**
Virgin River	**35.1**	**11.6**	**46.7**	**7**	**-3.61**	**03, 14, 02, 15**

**EOM, end of month; # SWSI, surface water supply index; ^KAF, thousand acre-feet.*

What is a Surface Water Supply Index?

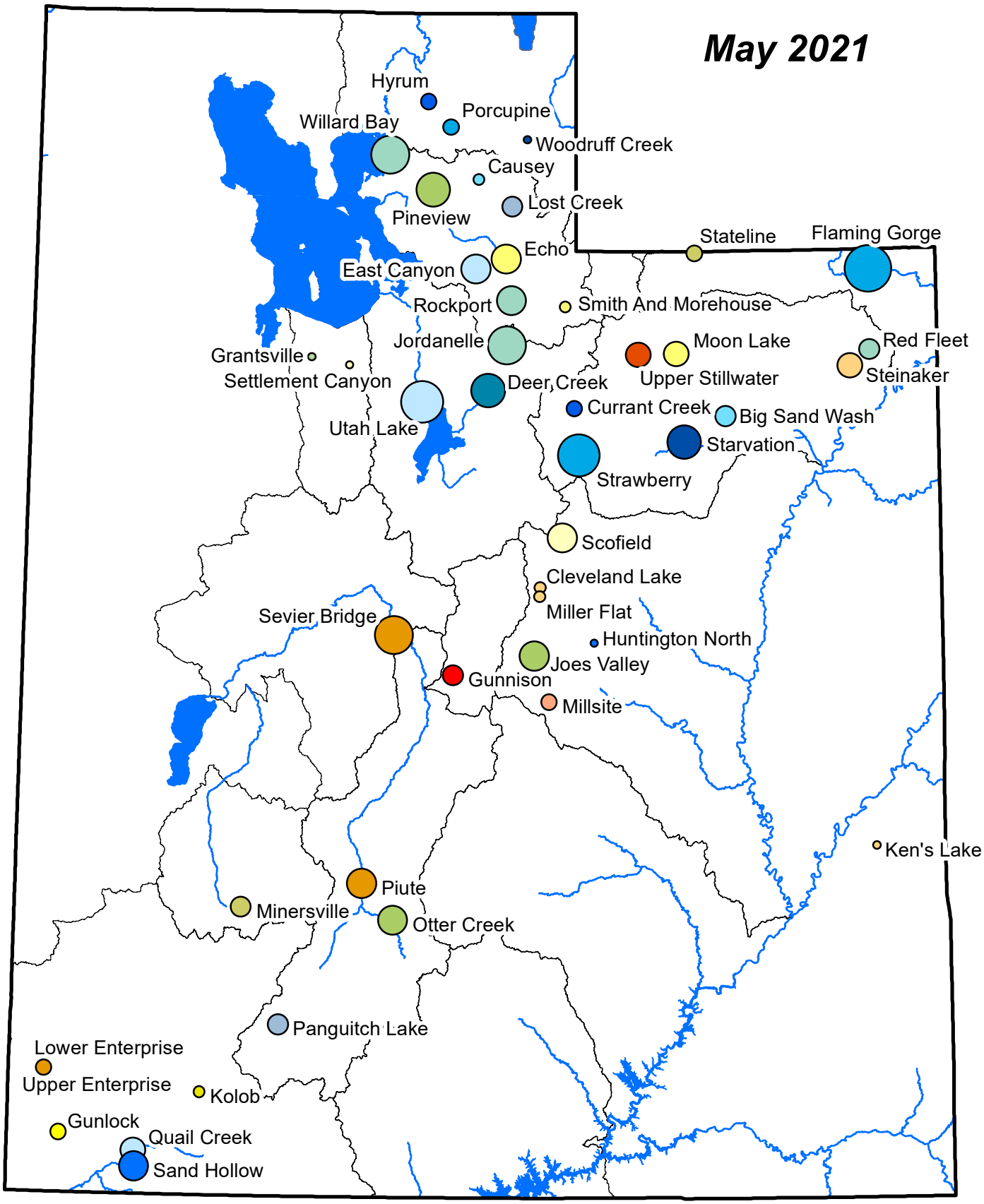
The Surface Water Supply Index (SWSI) is a predictive indicator of total surface water availability within a watershed for the spring and summer water use seasons. The index is calculated by combining pre-runoff reservoir storage (carryover) with forecasts of spring and summer streamflow which are based on current snowpack and other hydrologic variables. SWSI values are scaled from +4.1 (abundant supply) to -4.1 (extremely dry) with a value of zero (0) indicating median water supply as compared to historical analysis. SWSI's are calculated in this fashion to be consistent with other hydroclimatic indicators such as the Palmer Drought Index and the Precipitation index.

Utah Snow Surveys has also chosen to display the SWSI value as well as a PERCENT CHANCE OF NON-EXCEEDANCE. While this is a cumbersome name, it has the simplest application. It can be best thought of as a scale of 1 to 99 with 1 being the drought of record (driest possible conditions) and 99 being the flood of record (wettest possible conditions) and a value of 50 representing average conditions. This rating scale is a percentile rating as well, for example a SWSI of 75% means that this years water supply is greater than 75% of all historical events and that only 25% of the time has it been exceeded. Conversely a SWSI of 10% means that 90% of historical events have been greater than this one and that only 10% have had less total water supply. This scale is comparable between basins: a SWSI of 50% means the same relative ranking on watershed A as it does on watershed B, which may not be strictly true of the +4 to -4 scale.

For more information on the SWSI go to: www.ut.nrcs.usda.gov/snow/ on the water supply page. The entire period of historical record for reservoir storage and streamflow is available.

Reservoir storage as percent capacity

May 2021



Reservoirs are colored by how full they are relative to total capacity, with increasingly red colors symbolizing lower amounts of water, increasingly blue colors reflecting conditions close to storage capacity, and yellow shades close to 50%. Symbol sizes reflect overall reservoir size and are grouped into 10 bins.

N

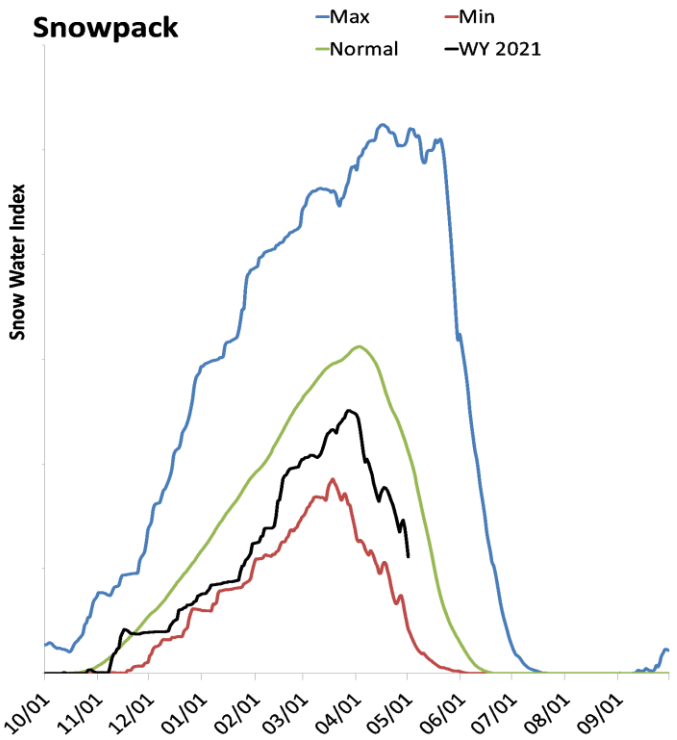
0 5 10 20 30 40 Miles

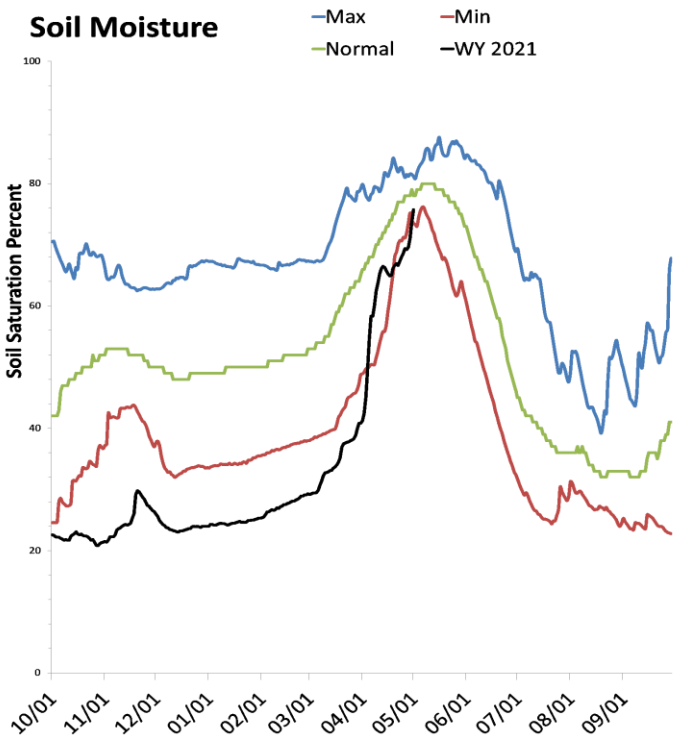
USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

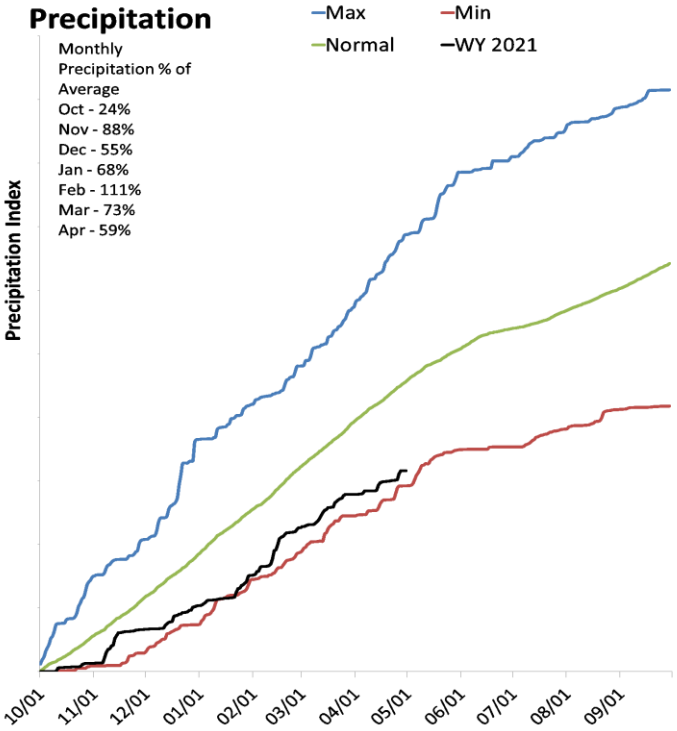
Statewide Utah

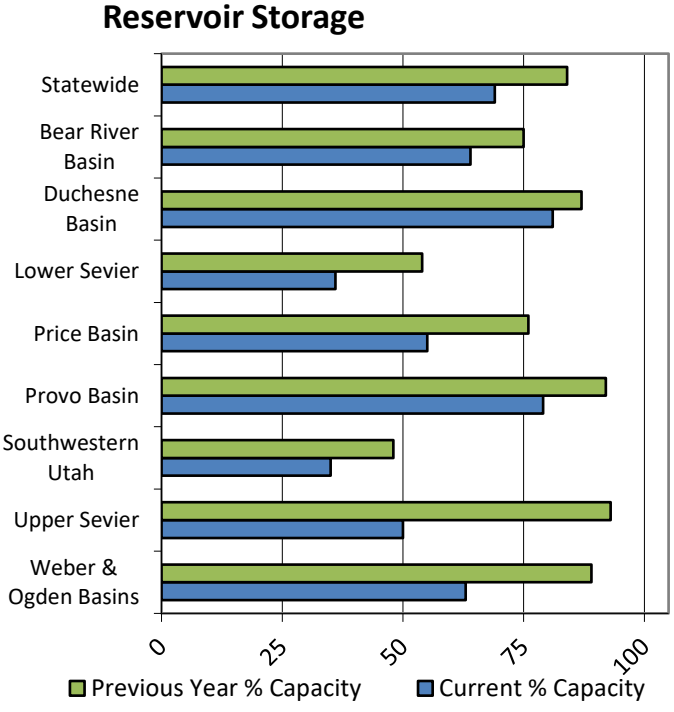
May 1, 2021

Snowpack in Utah is much below normal at 52% of normal, compared to 78% last year. Precipitation in April was much below average at 59%, which brings the seasonal accumulation (Oct-Apr) to 69% of average. Soil moisture is at 74% compared to 81% last year. Reservoir storage is at 69% of capacity, compared to 84% last year. Forecast streamflow volumes range from 11% to 68% of average.







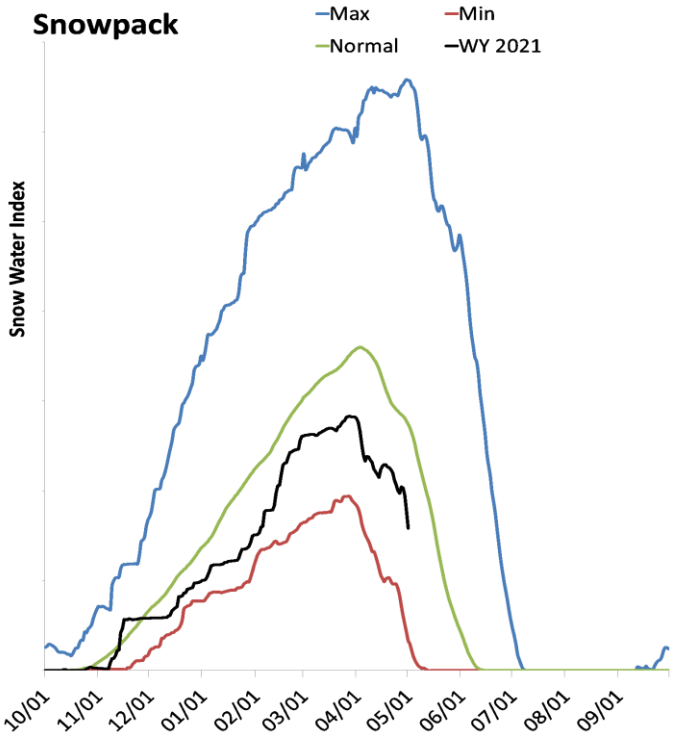


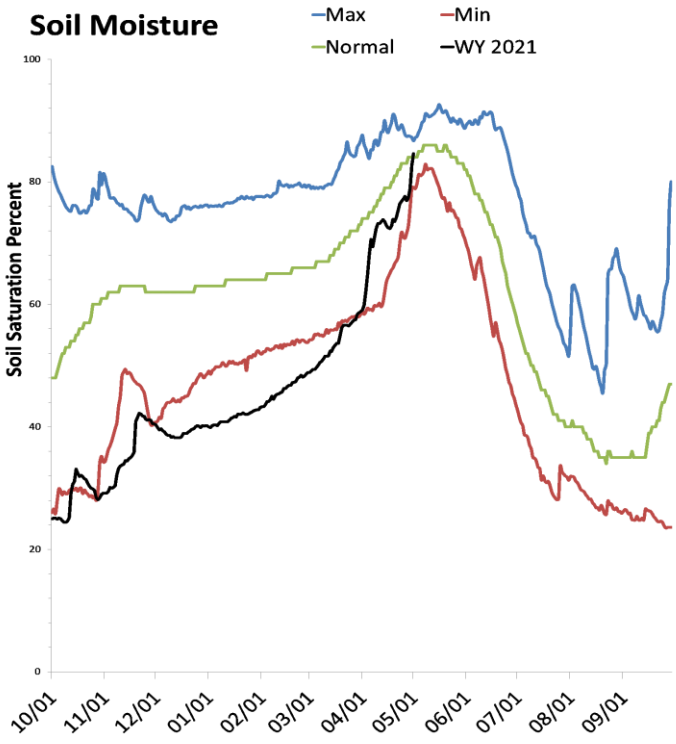
SNOTEL Data

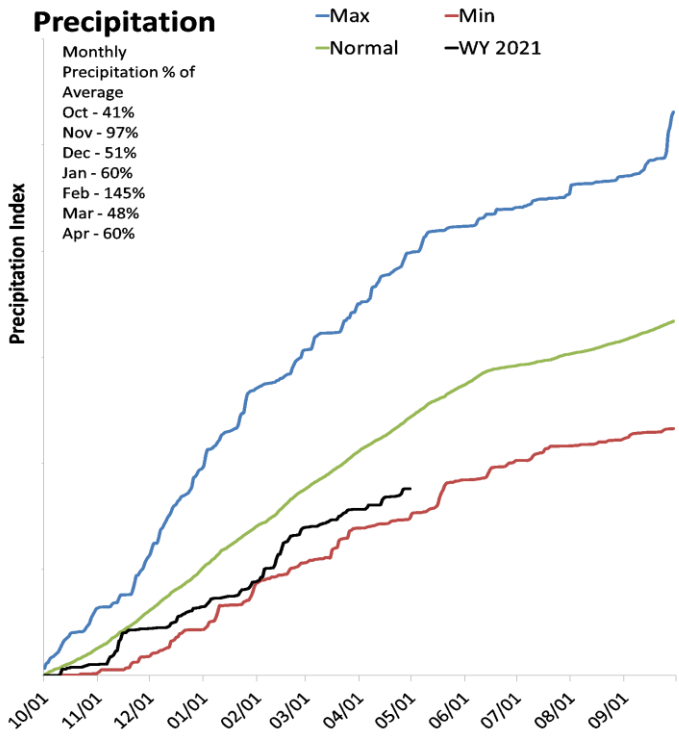
Bear River Basin

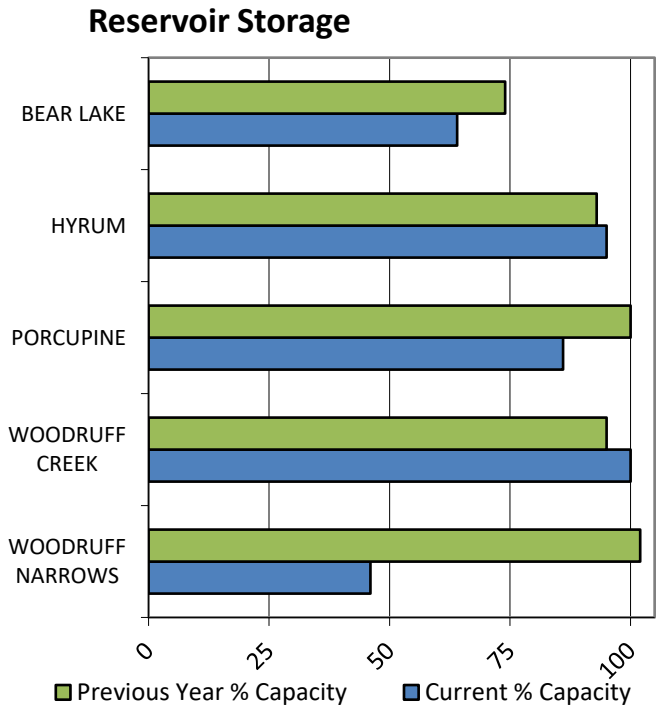
May 1, 2021

Snowpack in the Bear River Basin is much below normal at 58% of normal, compared to 93% last year. Precipitation in April was much below average at 60%, which brings the seasonal accumulation (Oct-Apr) to 72% of average. Soil moisture is at 84% compared to 85% last year. Reservoir storage is at 64% of capacity, compared to 75% last year. Forecast streamflow volumes range from 11% to 61% of average. The surface water supply index is 52% for the Bear River, 10% for the Woodruff Narrows, 3% for the Little Bear.









SNOTEL Data

Data Current as of: 5/6/2021 9:06:48 AM

Bear River
Streamflow Forecasts - May 1, 2021

Bear River	Forecast Period	Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast 90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Bear R nr UT-WY State Line								
	APR-JUL	44	57	66	59%	75	88	112
	APR-SEP	49	64	74	60%	84	99	123
	MAY-JUL	41	54	62	60%	70	83	104
	MAY-SEP	41	55	65	56%	74	89	116
Bear R ab Resv nr Woodruff								
	APR-JUL	3.6	14.8	36	30%	58	90	121
	APR-SEP	2.6	10.4	34	27%	58	93	128
	MAY-JUL	3.2	13	33	31%	53	83	105
	MAY-SEP	3.3	8.8	31	28%	53	86	111
Big Ck nr Randolph								
	APR-JUL	0	0.11	0.8	21%	2.1	4.1	3.8
	MAY-JUL	0	0.09	0.5	16%	1.66	3.4	3.1
Smiths Fk nr Border								
	APR-JUL	37	47	54	61%	62	72	89
	APR-SEP	46	57	65	63%	73	85	104
	MAY-JUL	33	43	50	63%	57	67	80
	MAY-SEP	41	52	60	63%	68	79	95
Bear R bl Stewart Dam								
	APR-JUL	0	5.5	20	11%	52	98	183
	APR-SEP	0	4.1	25	12%	61	114	205
	MAY-JUL	0	1.46	13	9%	43	88	146
	MAY-SEP	0	1.69	18	11%	54	106	169
Little Bear at Paradise								
	APR-JUL	1.35	4.2	9.2	20%	14.2	21	45
	MAY-JUL	0.96	1.64	6.6	21%	11.6	18.9	32
Logan R nr Logan								
	APR-JUL	31	43	51	46%	59	71	111
	MAY-JUL	27	39	44	46%	55	67	96
Blacksmith Fk nr Hyrum								
	APR-JUL	1.1	5.8	13	30%	20	31	43
	MAY-JUL	0.93	2.4	9	29%	15.7	26	31

1) 90% and 10% exceedance probabilities are actually 95% and 5%
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
3) Median value used in place of average

Reservoir Storage End of April, 2021	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Bear Lake	833.1	957.4	651.7	1302.0
Hyrum Reservoir	14.6	14.2	14.1	15.3
Porcupine Reservoir	9.7	11.3	10.1	11.3
Woodruff Creek	4.0	3.8	3.8	4.0
Woodruff Narrows Reservoir	26.5	58.3	45.5	57.3
Basin-wide Total	887.9	1045.0	725.2	1389.9
# of reservoirs	5	5	5	5

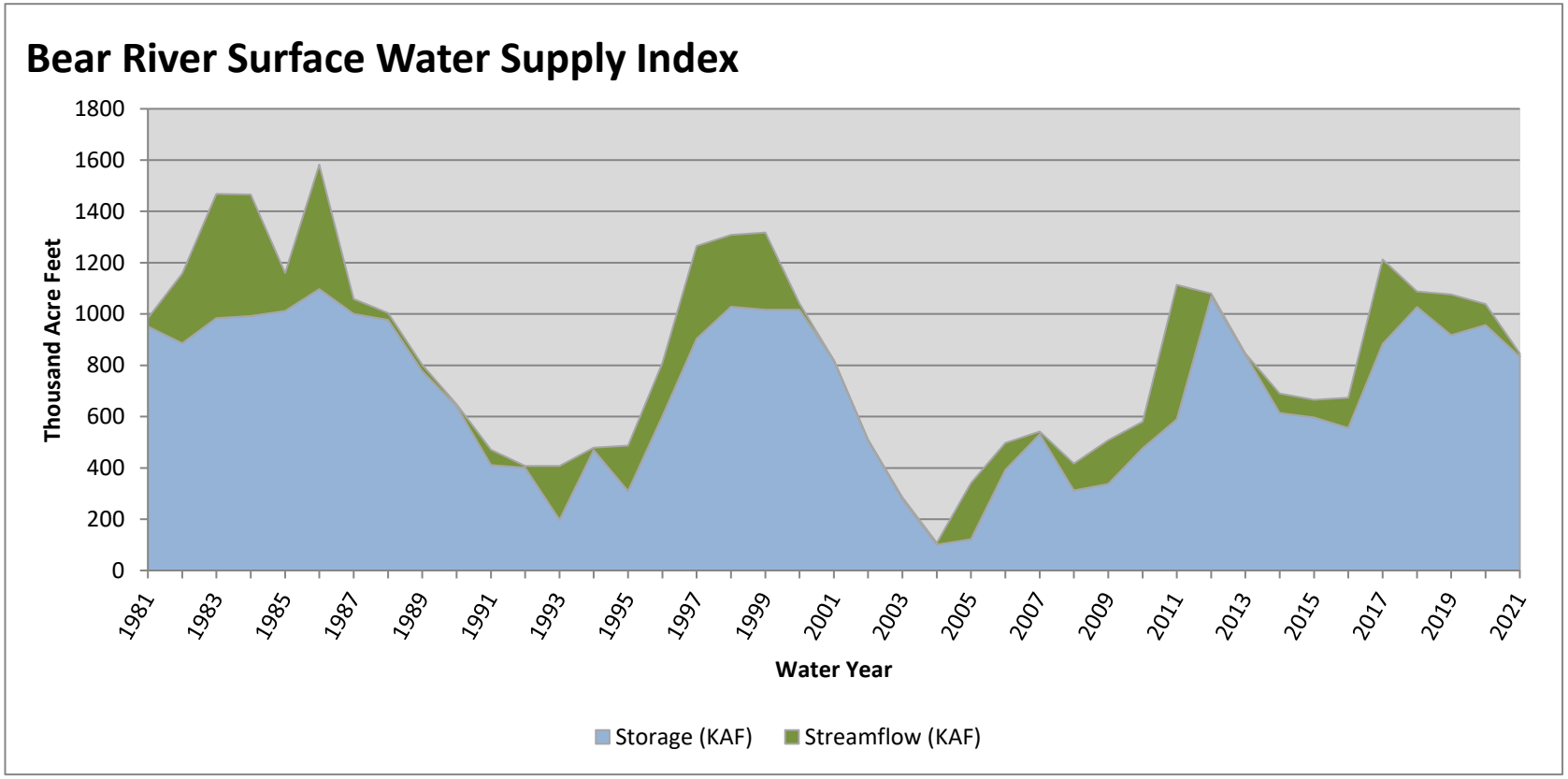
Watershed Snowpack Analysis May 1, 2021	# of Sites	% Median	Last Year % Median
Upper Bear	4	61%	90%
Middle Bear	7	68%	101%
Lower Bear	3	66%	83%
Logan River	9	53%	92%

May 1, 2021

Surface Water Supply Index

Basin or Region	Apr EOM* Storage	MAY-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Bear River	**833.08**	**13.00**	**846.08**	**52**	**0.2**	**96, 01, 13, 81**

*EOM, end of month; #SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.

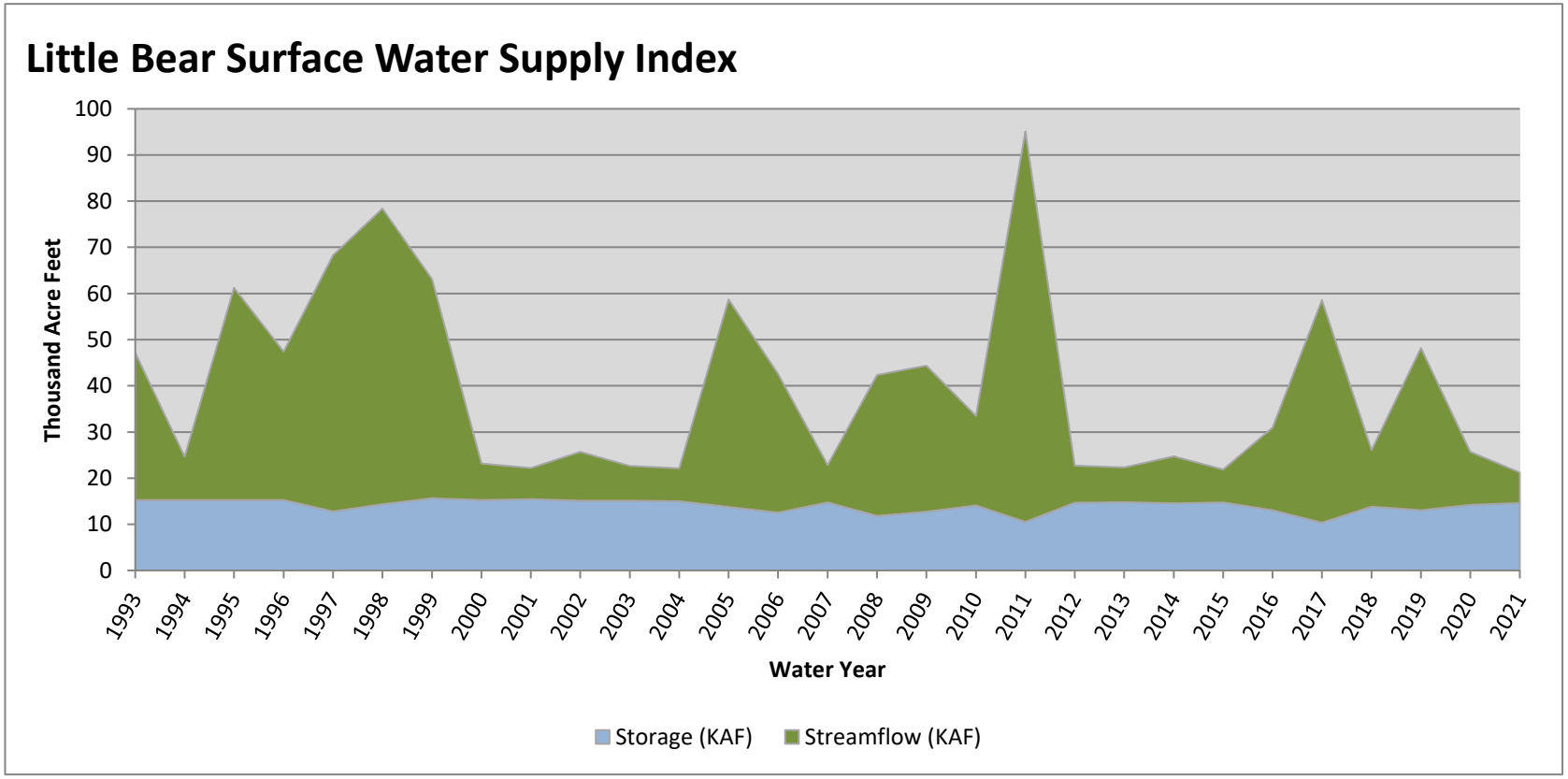


May 1, 2021

Surface Water Supply Index

Basin or Region	Apr EOM* Storage	MAY-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Little Bear	**14.60**	**6.60**	**21.20**	**3**	**-3.89**	**15, 04, 01, 13**

*EOM, end of month; #SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.

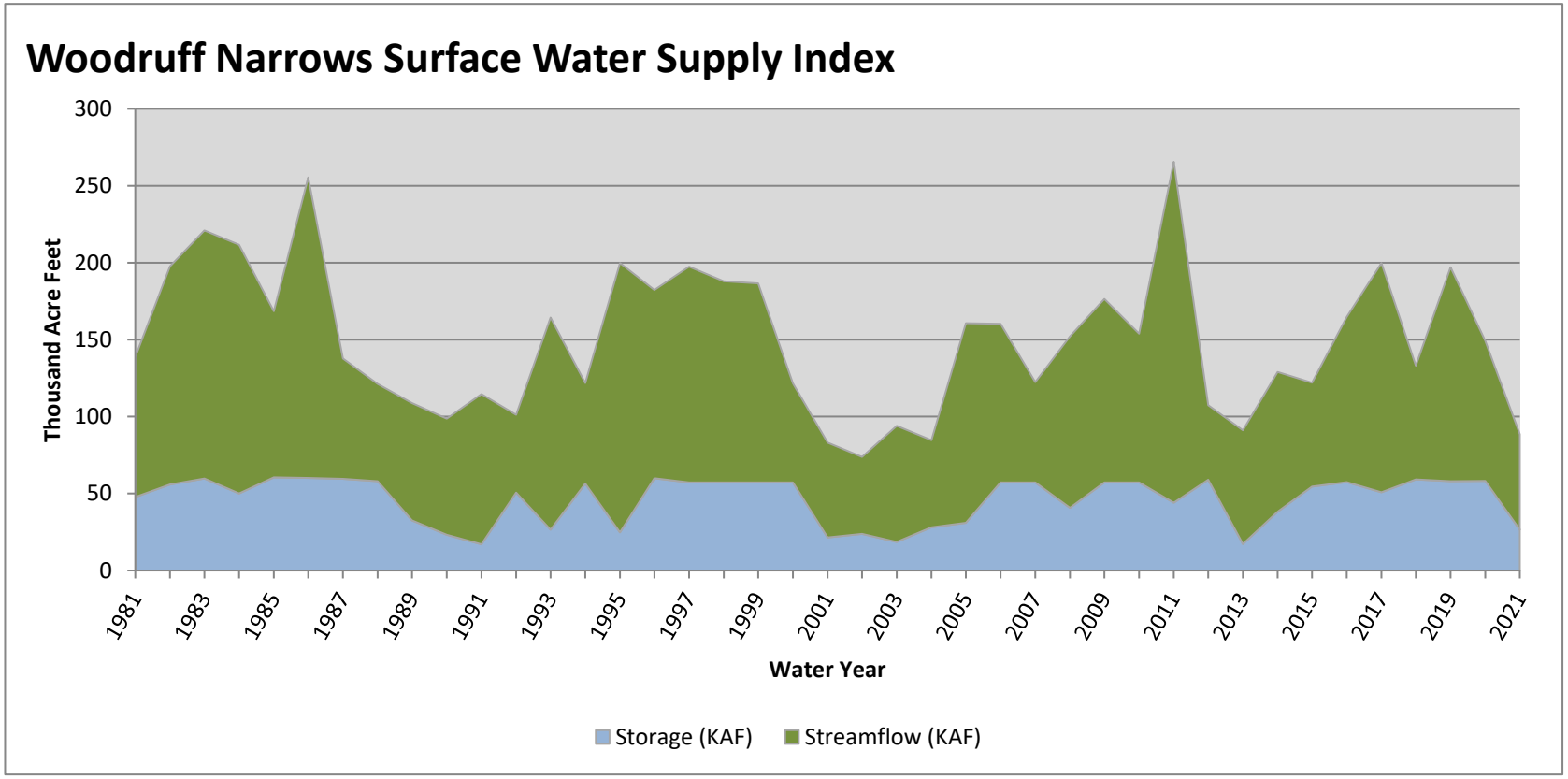


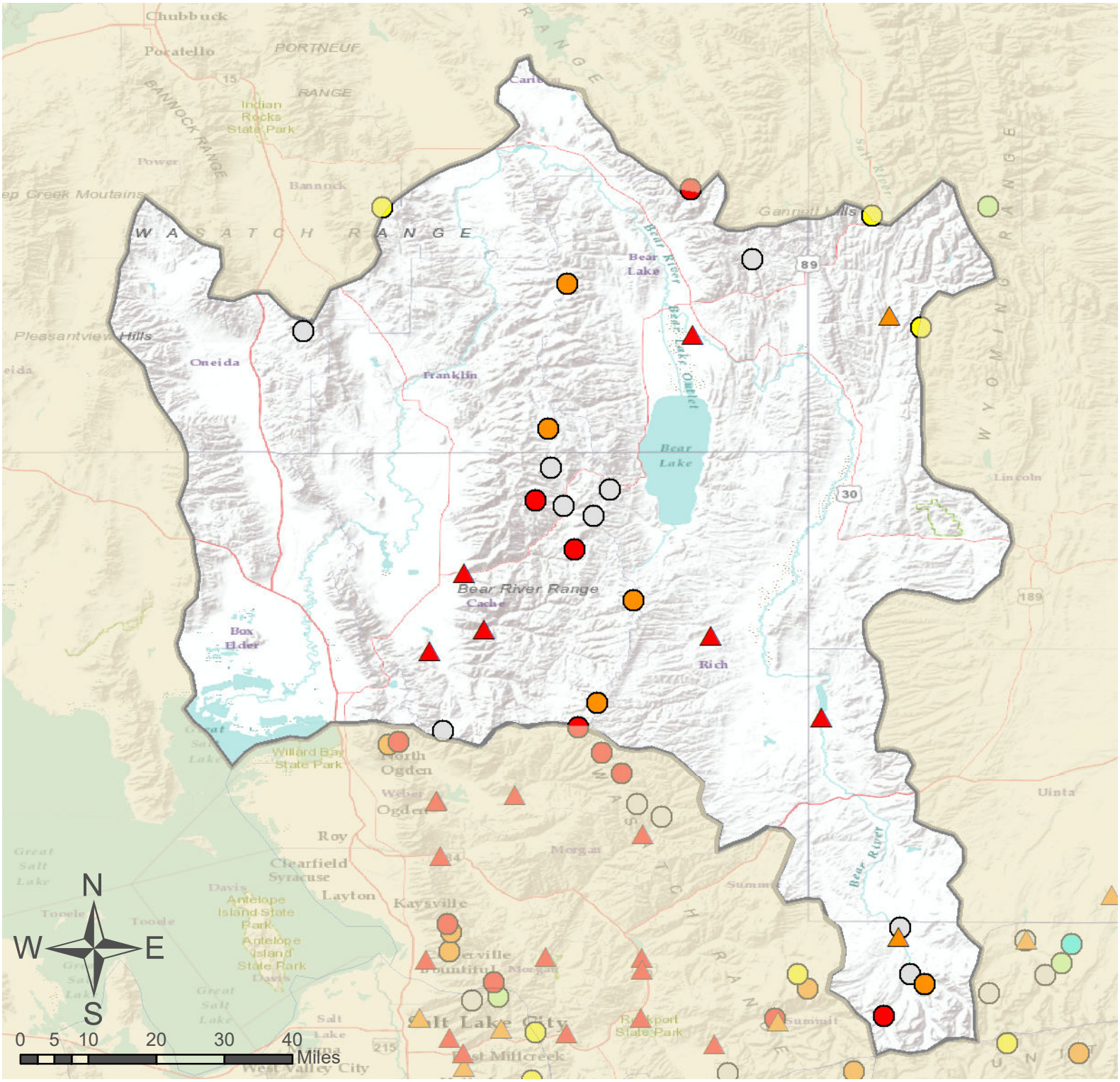
May 1, 2021

Surface Water Supply Index

Basin or Region	Apr EOM* Storage	MAY-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Woodruff Narrows	**26.52**	**62.00**	**88.52**	**10**	**-3.37**	**01, 04, 13, 03**

*EOM, end of month; #SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.





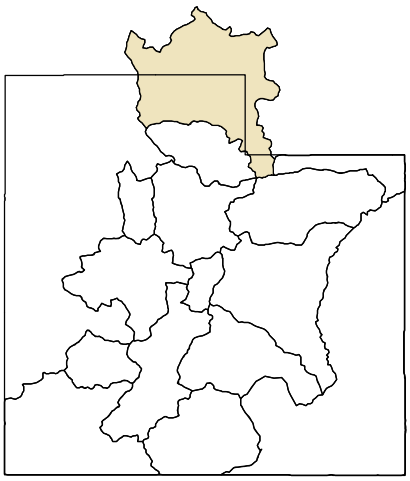
Bear River Basin

SNOTEL Site

Forecast Point

% of Normal

- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- > 150%
- No Normal



As of May 1, 2021:

58% of Normal SWE

72% of Normal Precipitation

60% of Normal Precipitation Last Month

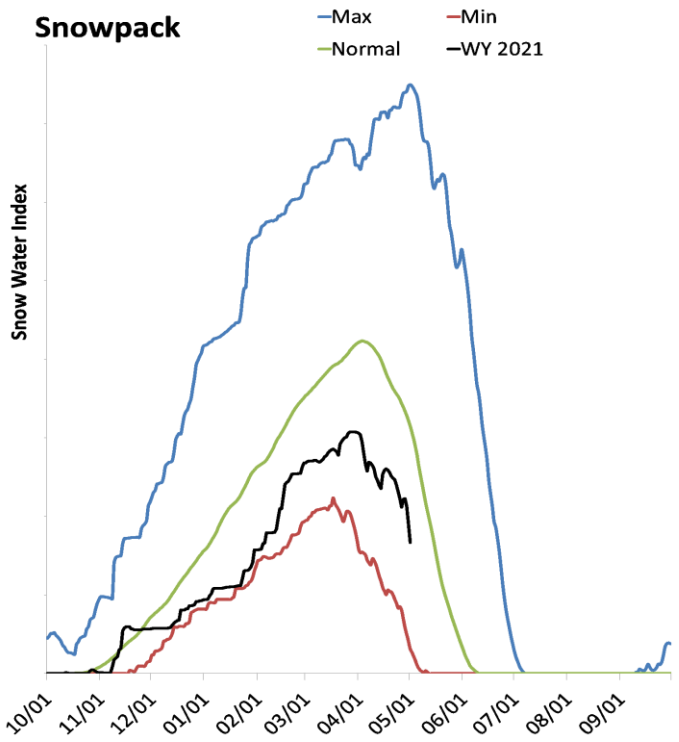
84% Saturation Soil Moisture

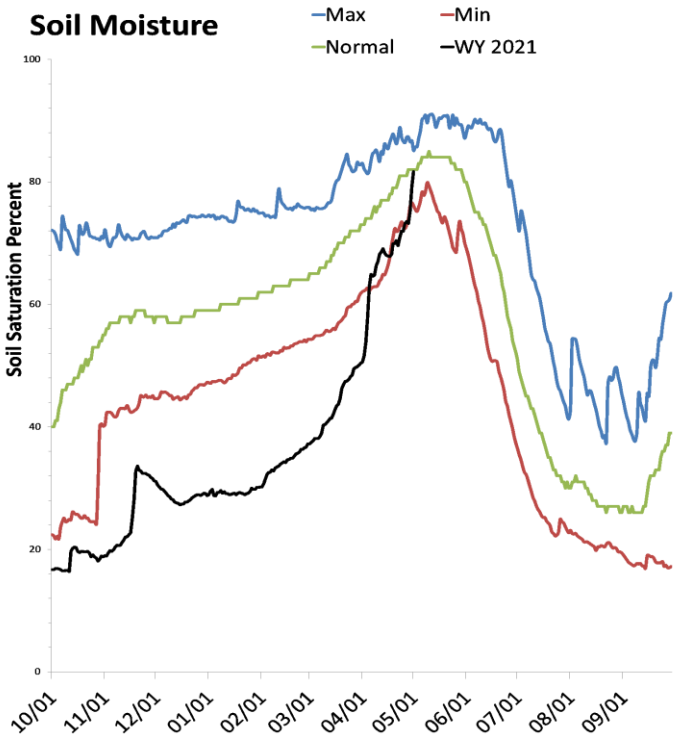
Bear River Basin

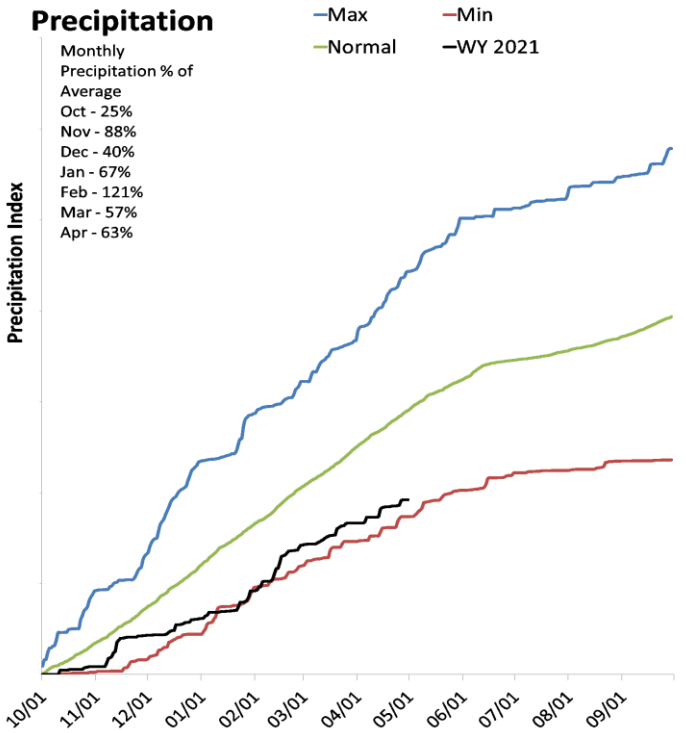
Weber & Ogden River Basins

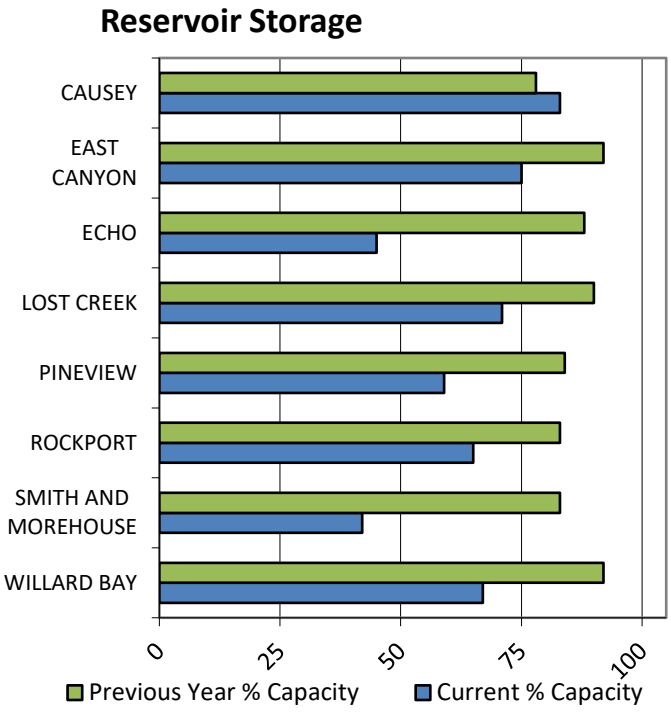
May 1, 2021

Snowpack in the Weber & Ogden River Basins is much below normal at 53% of normal, compared to 65% last year. Precipitation in April was much below average at 63%, which brings the seasonal accumulation (Oct-Apr) to 66% of average. Soil moisture is at 81% compared to 88% last year. Reservoir storage is at 63% of capacity, compared to 89% last year. Forecast streamflow volumes range from 22% to 49% of average. The surface water supply index is 19% for the Ogden River, 5% for the Weber River.









SNOTEL Data

Data Current as of: 5/6/2021 9:06:54 AM

Weber Ogden Rivers
Streamflow Forecasts - May 1, 2021

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

Weber Ogden Rivers	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Smith & Morehouse Resv Inflow								
	APR-JUL	12.7	15.1	16.8	49%	18.4	21	34
Weber R nr Oakley								
	APR-JUL	32	44	52	44%	61	73	117
	MAY-JUL	25	38	47	44%	56	69	106
Rockport Reservoir Inflow								
	APR-JUL	16.2	32	43	35%	54	70	123
	MAY-JUL	7.3	22	33	31%	43	58	106
Chalk Ck at Coalville								
	APR-JUL	0	2	9	22%	16.7	28	41
	MAY-JUL	0	1.7	7.2	21%	14.7	26	34
Weber R nr Coalville								
	APR-JUL	5.9	25	38	30%	51	70	126
	MAY-JUL	3.2	15.8	27	25%	38	55	106
Echo Reservoir Inflow								
	APR-JUL	0	11.3	38	23%	66	106	166
	MAY-JUL	0	12.2	36	24%	60	95	152
Lost Ck Reservoir Inflow								
	APR-JUL	0	0.89	3.9	32%	6.9	11.3	12.1
	MAY-JUL	0	0.51	2.7	32%	5.3	8.3	8.5
East Canyon Ck nr Jeremy Ranch								
	APR-JUL	0.17	3.5	5.8	38%	8.1	11.4	15.2
	MAY-JUL	0	0.44	3.6	35%	6.8	11.4	10.2
East Canyon Ck nr Morgan								
	APR-JUL	1.12	5	9	32%	13	18.9	28
	MAY-JUL	0.58	3.6	6.6	34%	9.6	14	19.4
Weber R at Gateway								
	APR-JUL	0	19.8	80	25%	140	230	315
	MAY-JUL	0	8.7	57	24%	105	176	240
SF Ogden R nr Huntsville								
	APR-JUL	2.7	10.6	16	29%	21	29	56
	MAY-JUL	1.25	7.7	12	30%	16.3	23	40
Pineview Reservoir Inflow								
	APR-JUL	3.5	23	43	36%	63	94	118
	MAY-JUL	0	20	36	47%	52	74	76
Wheeler Ck nr Huntsville								
	APR-JUL	0.06	0.93	1.8	29%	2.7	3.9	6.3
	MAY-JUL	0	0.22	1	23%	1.92	3.3	4.3
Centerville Ck								
	APR-JUL	0.12	0.29	0.4	30%	0.51	0.68	1.35
	MAY-JUL	0.03	0.16	0.3	28%	0.44	0.64	1.07

1) 90% and 10% exceedance probabilities are actually 95% and 5%
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
3) Median value used in place of average

Reservoir Storage End of April, 2021	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Causey Reservoir	5.9	5.5	5.0	7.1
East Canyon Reservoir	36.9	45.4	40.4	49.5
Echo Reservoir	33.3	65.2	54.4	73.9
Lost Creek Reservoir	16.0	20.3	14.6	22.5
Pineview Reservoir	64.6	92.5	79.9	110.1
Rockport Reservoir	39.8	50.6	40.1	60.9
Willard Bay	144.5	198.5	158.7	215.0
Smith And Morehouse Reservoir	3.4	6.7	4.5	8.1
Basin-wide Total	344.2	484.6	397.6	547.1
# of reservoirs	8	8	8	8

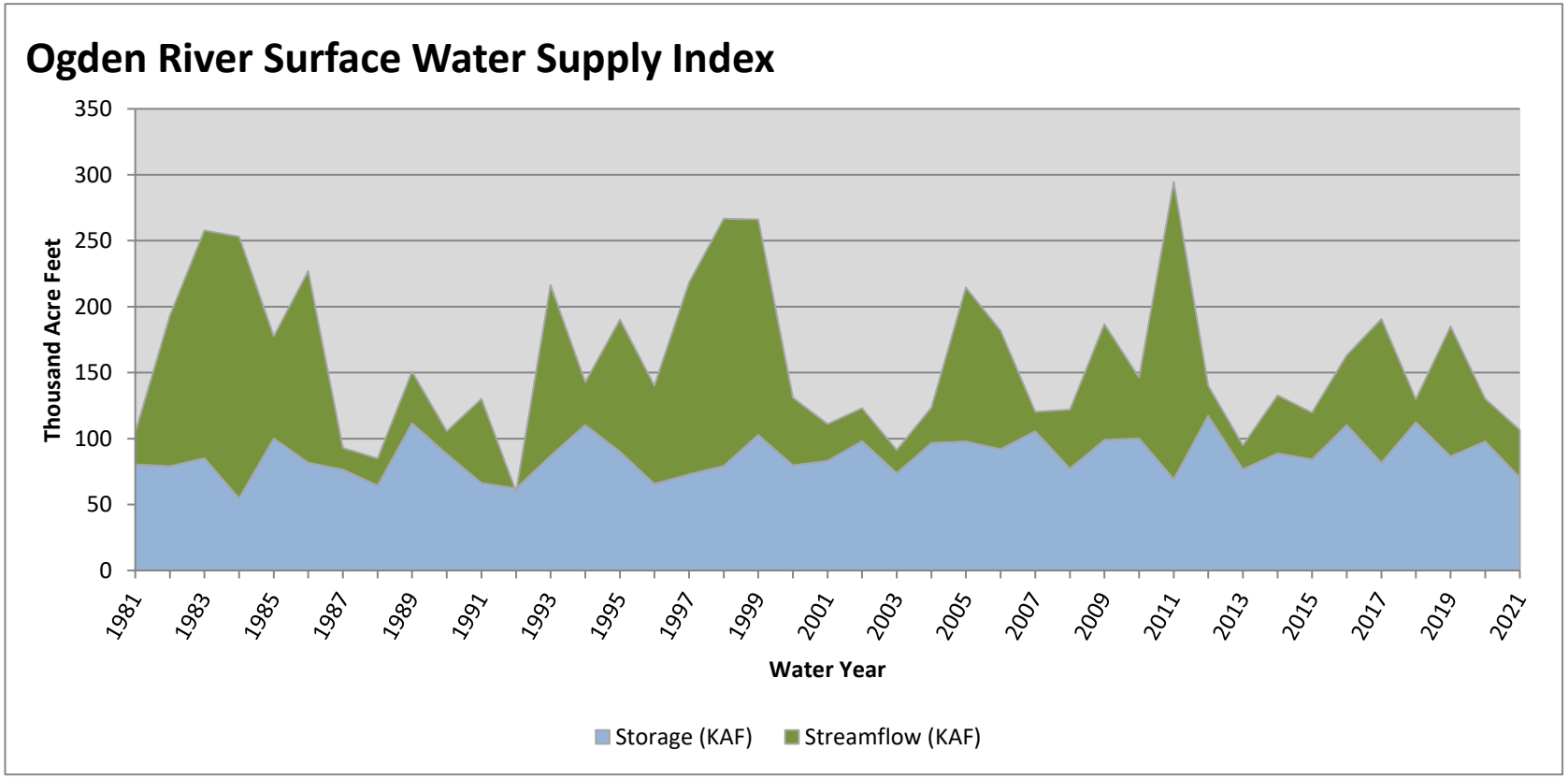
Watershed Snowpack Analysis May 1, 2021	# of Sites	% Median	Last Year % Median
Upper Weber	10	55%	80%
Lower Weber	7	64%	62%
Ogden River	5	42%	54%
Lost Creek	3	46%	71%

May 1, 2021

Surface Water Supply Index

Basin or Region	Apr EOM* Storage	MAY-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Ogden River	**70.45**	**36.00**	**106.45**	**19**	**-2.58**	**81, 90, 01, 15**

*EOM, end of month; #SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.

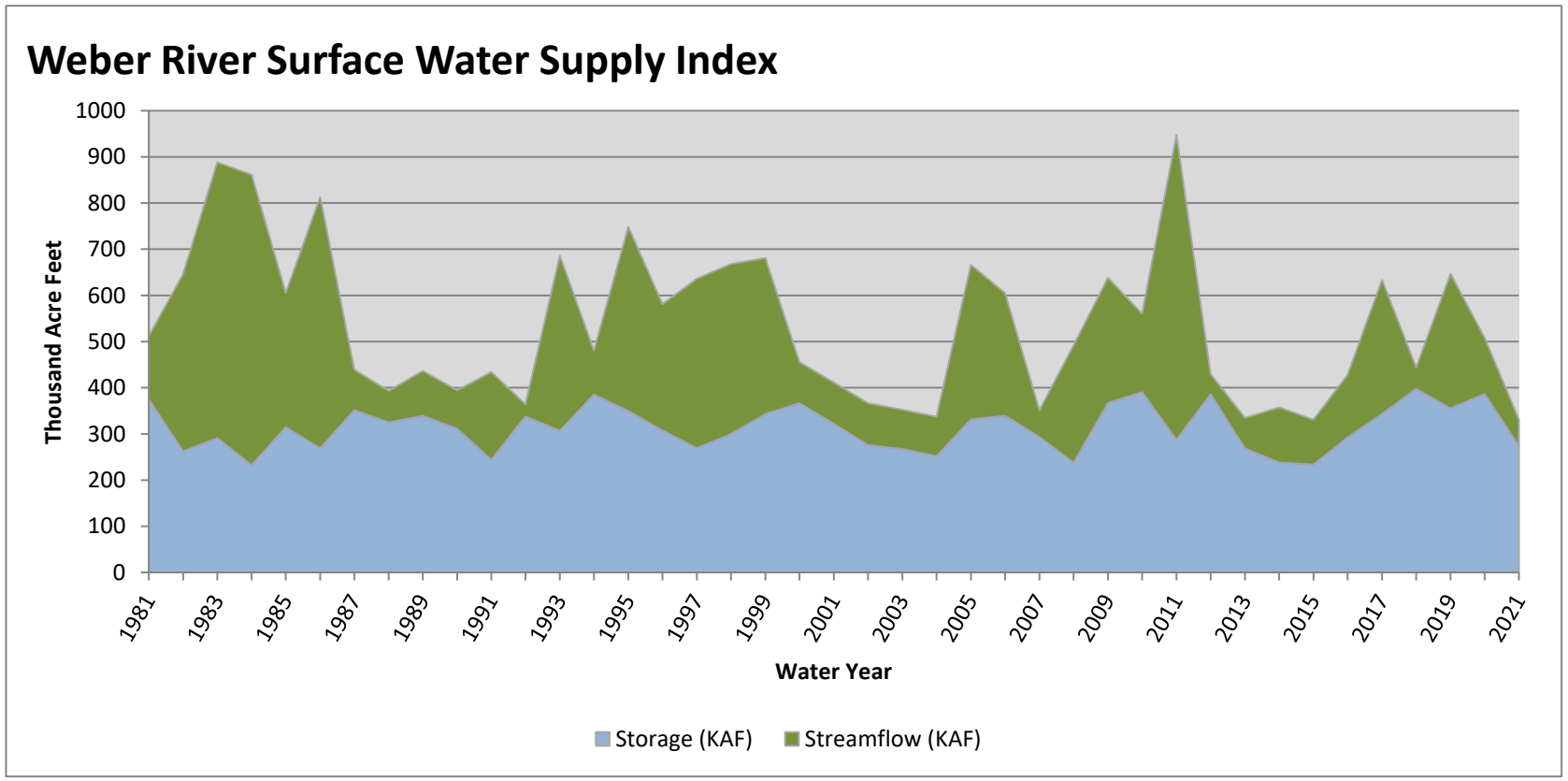


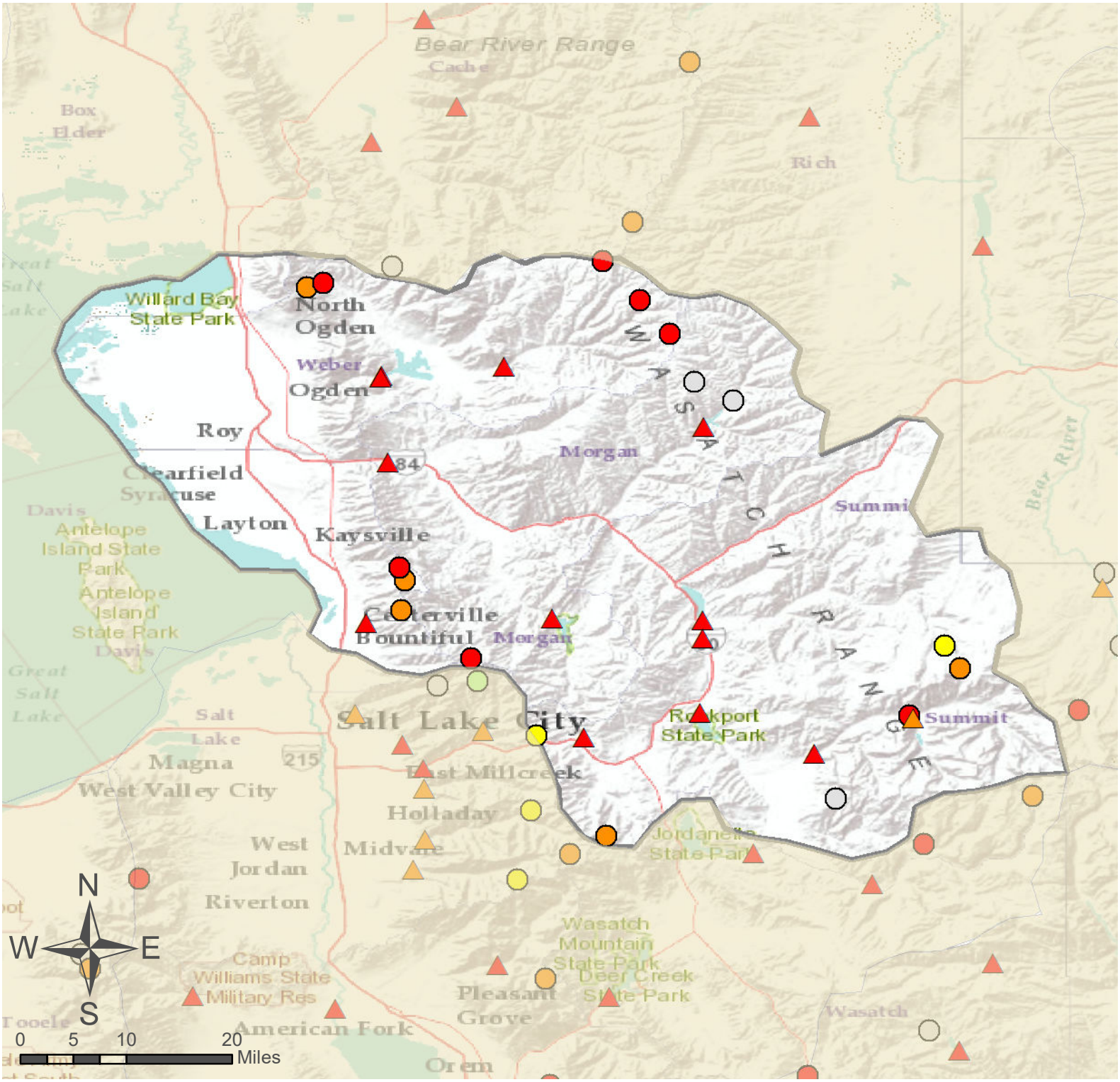
May 1, 2021

Surface Water Supply Index

Basin or Region	Apr EOM* Storage	MAY-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Weber River	**273.78**	**57.00**	**330.78**	**5**	**-3.77**	**15, 13, 04, 07**

*EOM, end of month; #SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.





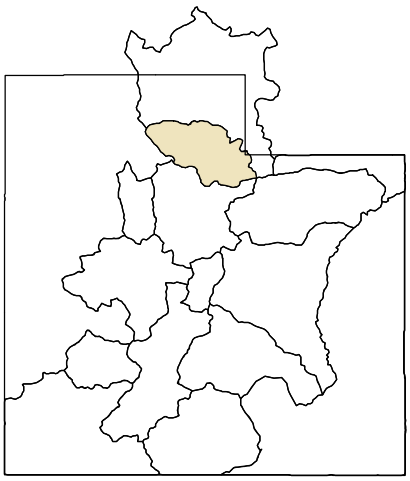
Weber & Ogden River Basins

SNOTEL Site

Forecast Point

% of Normal

- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- > 150%
- No Normal



As of May 1, 2021:

53% of Normal SWE

66% of Normal Precipitation

63% of Normal Precipitation Last Month

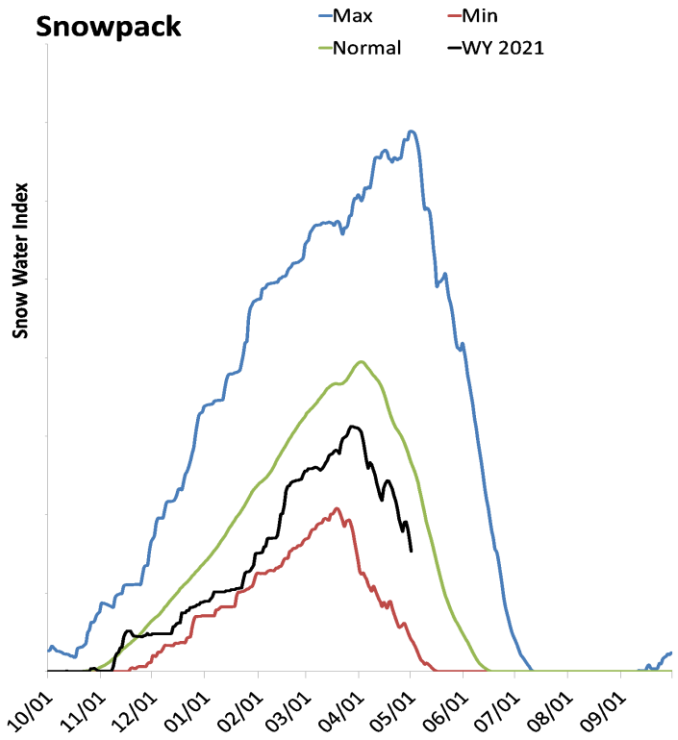
81% Saturation Soil Moisture

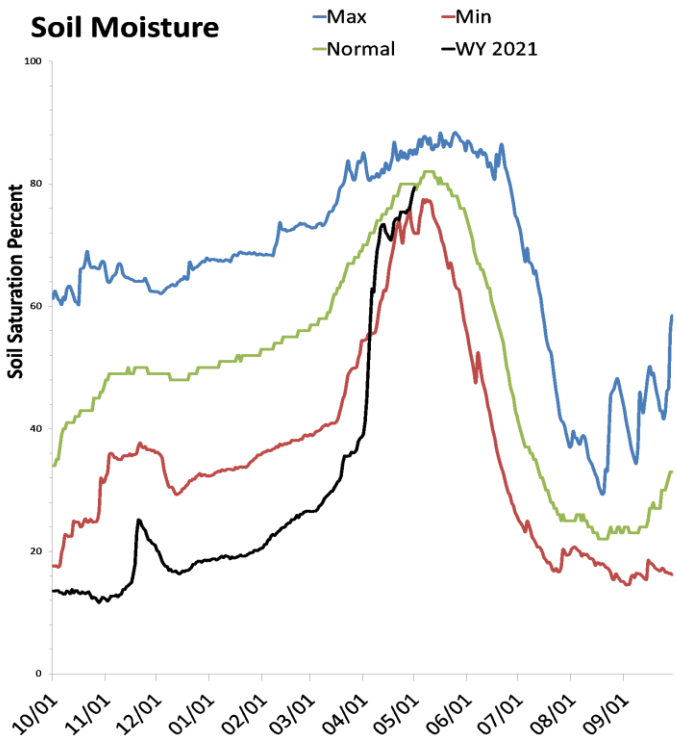
Weber & Ogden River Basins

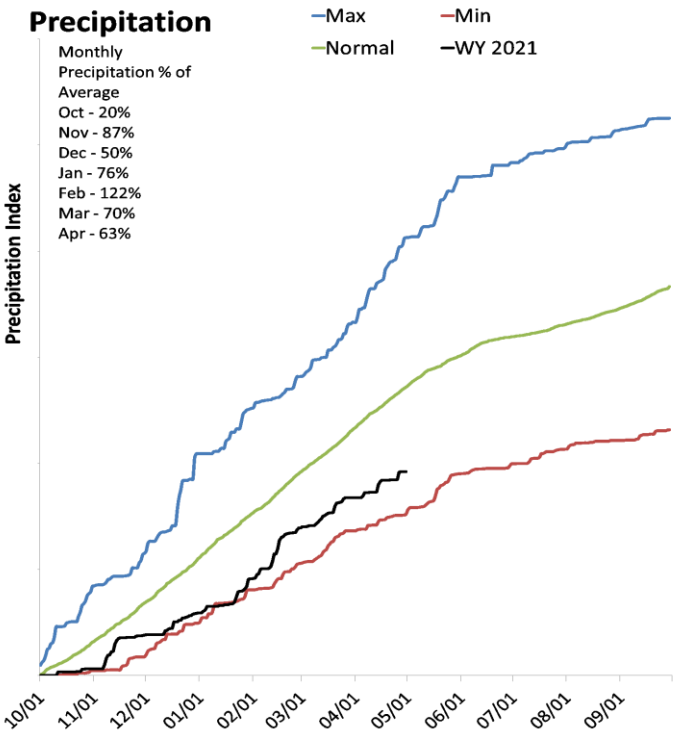
Provo & Jordan River Basins

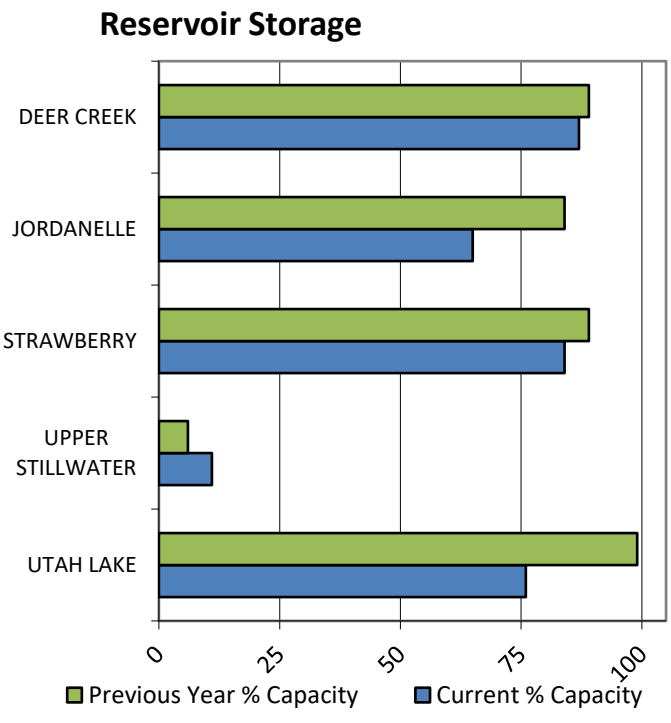
May 1, 2021

Snowpack in the Provo & Jordan River Basins is much below normal at 58% of normal, compared to 69% last year. Precipitation in April was much below average at 63%, which brings the seasonal accumulation (Oct-Apr) to 71% of average. Soil moisture is at 79% compared to 84% last year. Reservoir storage is at 79% of capacity, compared to 92% last year. Forecast streamflow volumes range from 26% to 68% of average. The surface water supply index is 18% for the Provo River.









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Provo Jordan Rivers
Streamflow Forecasts - May 1, 2021

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

Provo Jordan Rivers	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Provo R at Woodland								
	APR-JUL	29	39	47	47%	56	70	100
	MAY-JUL	20	34	43	48%	52	65	89
Provo R at Hailstone								
	APR-JUL	27	39	48	44%	58	75	108
	MAY-JUL	28	39	47	50%	56	70	94
Provo R bl Deer Ck Dam								
	APR-JUL	4.7	23	36	31%	49	67	116
	MAY-JUL	6.2	23	34	36%	45	61	94
Spanish Fk at Castilla								
	APR-JUL	0	4.1	18	26%	40	75	69
	MAY-JUL	0	3.8	14.6	27%	36	58	54
American Fk ab Upper Powerplant								
	APR-JUL	2.6	8.1	11.9	37%	15.7	21	32
	MAY-JUL	2.2	7.4	11	37%	14.5	19.7	30
Utah Lake Inflow								
	APR-JUL	8	24	106	40%	193	295	265
	MAY-JUL	1.92	25	79	41%	117	220	192
W Canyon Ck nr Cedar Fort								
	APR-JUL	0.05	0.18	0.52	30%	0.86	1.37	1.76
	MAY-JUL	0.05	0.19	0.51	33%	0.83	1.3	1.54
Little Cottonwood Ck nr SLC								
	APR-JUL	18.1	23	26	68%	30	35	38
	MAY-JUL	19.3	22	24	65%	26	30	37
Big Cottonwood Ck nr SLC								
	APR-JUL	12.5	18.4	22	61%	27	33	36
	MAY-JUL	11.3	16.5	20	61%	24	29	33
Mill Ck nr SLC								
	APR-JUL	0.06	2.1	3.5	55%	4.9	6.9	6.4
	MAY-JUL	0.06	1.72	2.9	49%	4.1	5.8	5.9
Parleys Ck nr SLC								
	APR-JUL	0.71	2.7	5.3	37%	7.9	11.7	14.2
	MAY-JUL	0.38	3	5.2	41%	7.4	10.7	12.8
Dell Fk nr SLC								
	APR-JUL	0.16	1.35	3	55%	4.6	7.1	5.5
	MAY-JUL	0.16	1.11	2.6	67%	4.1	6.3	3.9
Emigration Ck nr SLC								
	APR-JUL	0.08	0.72	1.8	45%	2.9	4.5	4
	MAY-JUL	0.16	0.76	1.7	55%	2.6	4	3.1
City Ck nr SLC								
	APR-JUL	0.66	2.8	4.3	56%	5.8	7.9	7.7
	MAY-JUL	0.62	2.6	3.9	53%	5.3	7.3	7.3
Salt Ck at Nephi								
	APR-JUL	0.29	1.46	2.8	29%	4.1	6.1	9.5
	MAY-JUL	0.23	1.31	2.4	32%	3.5	5.1	7.6

1) 90% and 10% exceedance probabilities are actually 95% and 5%
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
3) Median value used in place of average

Reservoir Storage End of April, 2021	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Deer Creek Reservoir	130.3	133.3	122.0	149.7
Strawberry Reservoir	925.7	986.8	678.4	1105.9
Utah Lake	662.1	866.1	830.9	870.9
Jordanelle Reservoir	208.3	270.2	247.1	314.0
Basin-wide Total	1926.5	2256.4	1878.4	2440.5
# of reservoirs	4	4	4	4

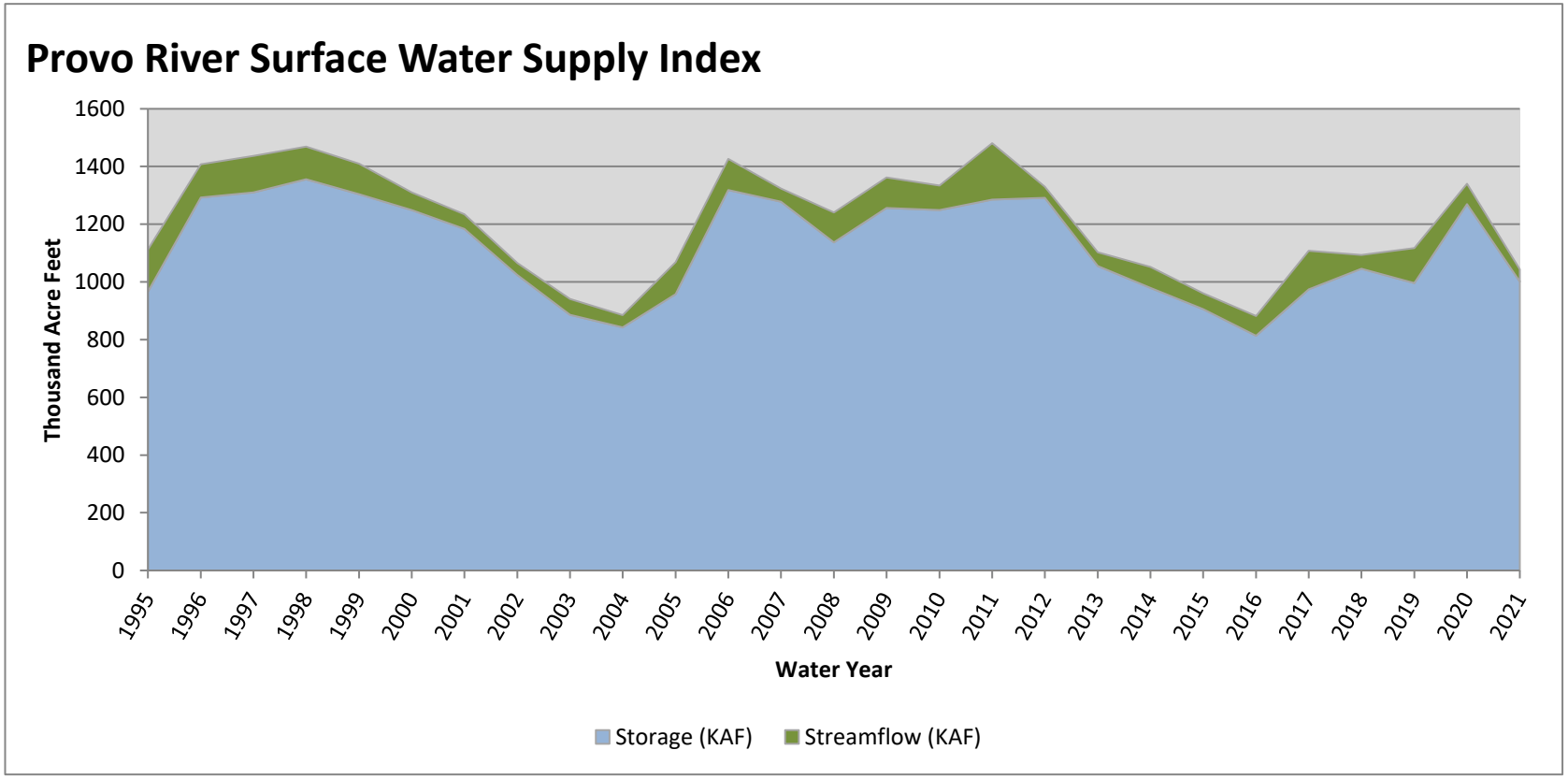
Watershed Snowpack Analysis May 1, 2021	# of Sites	% Median	Last Year % Median
Provo River	7	57%	75%
Jordan River	16	72%	86%
Utah Lake	13	55%	75%
Spanish Fork River	6	8%	24%
Six Creeks	15	74%	88%
Cottonwood Creeks	7	72%	93%

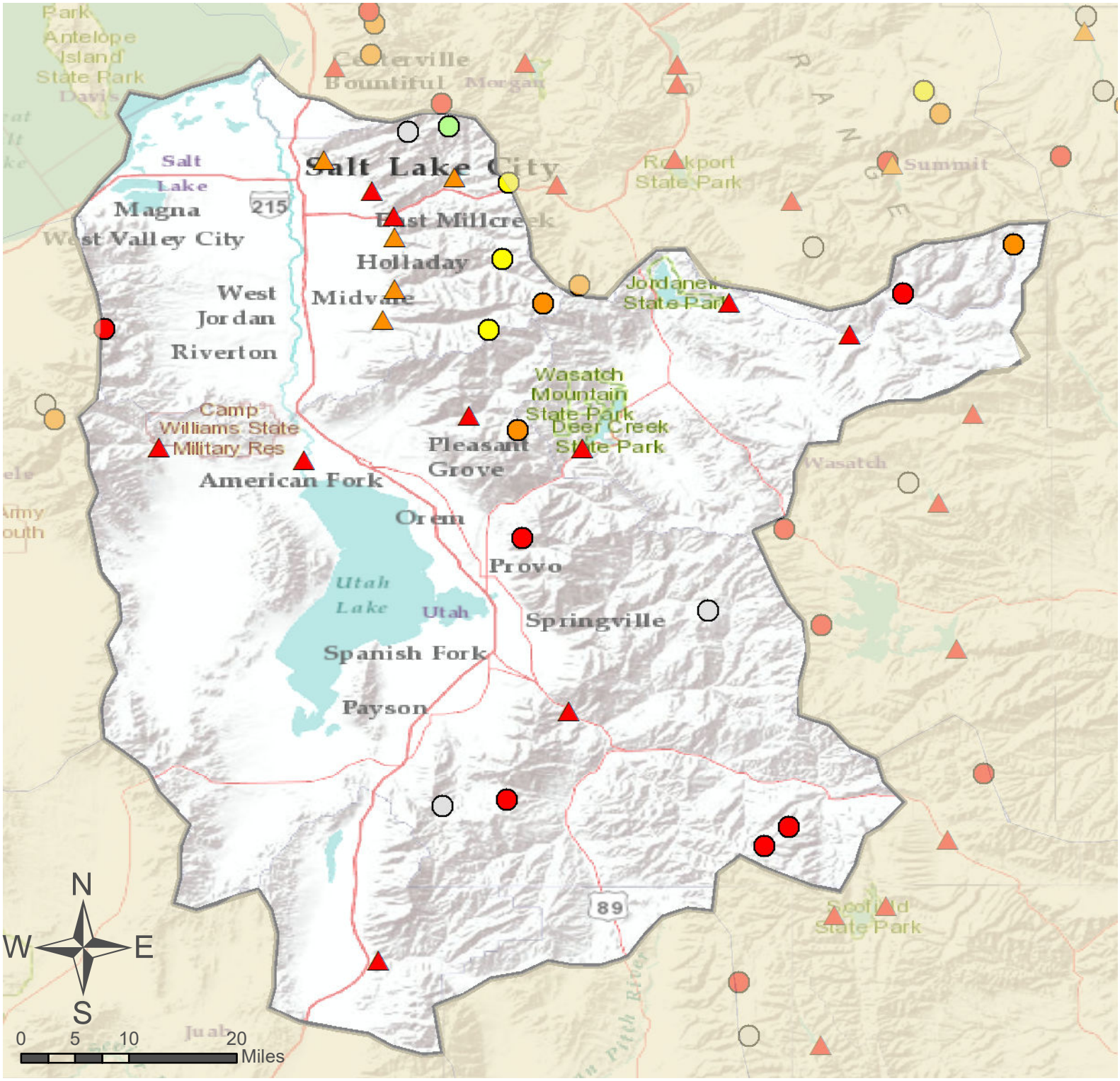
May 1, 2021

Surface Water Supply Index

Basin or Region	Apr EOM* Storage	MAY-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Provo River	**1000.74**	**43.00**	**1043.74**	**18**	**-2.68**	**03, 15, 14, 02**

*EOM, end of month; #SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.





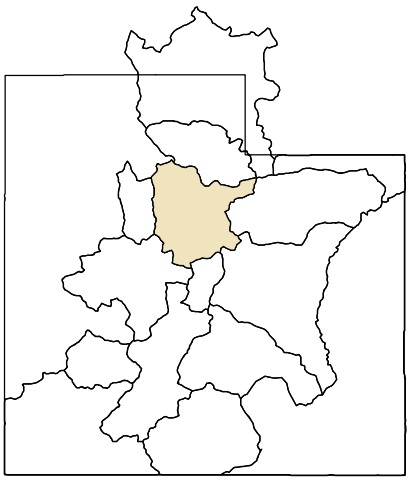
Provo & Jordan River Basins

SNOTEL Site

Forecast Point

% of Normal

- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- > 150%
- No Normal



As of May 1, 2021:

58% of Normal SWE

71% of Normal Precipitation

63% of Normal Precipitation Last Month

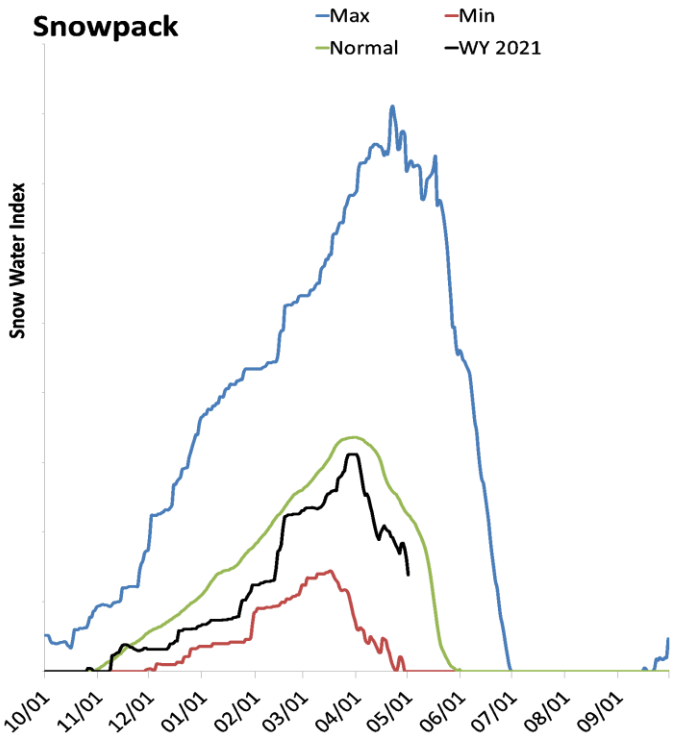
79% Saturation Soil Moisture

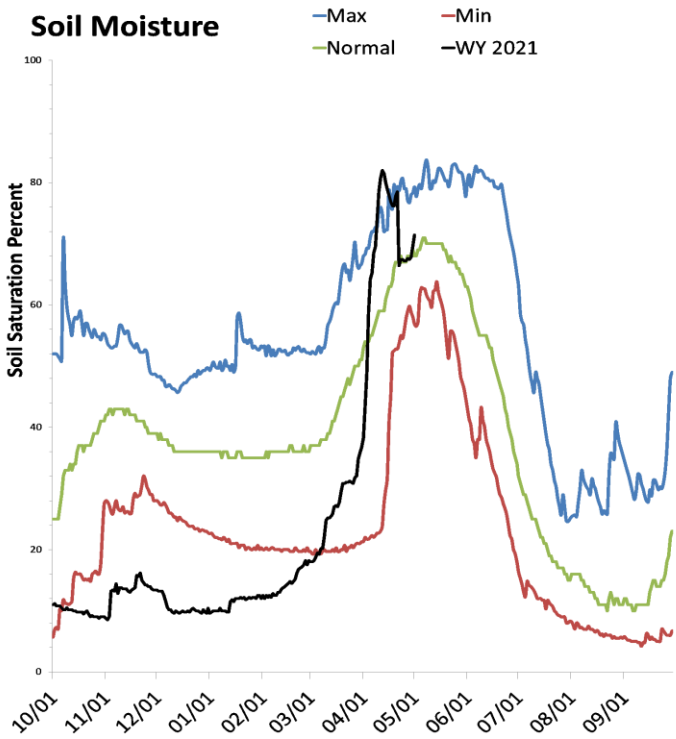
Provo & Jordan River Basins

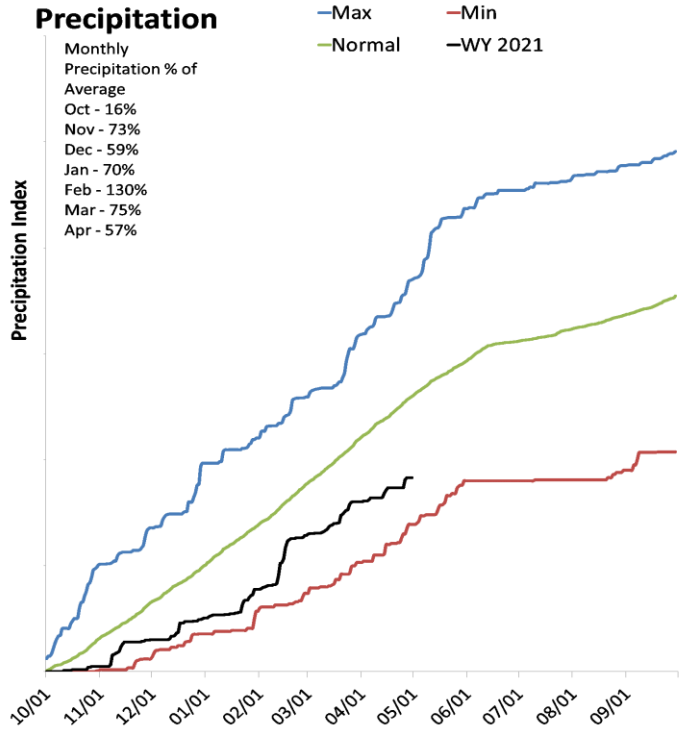
Tooele Valley & West Desert Basins

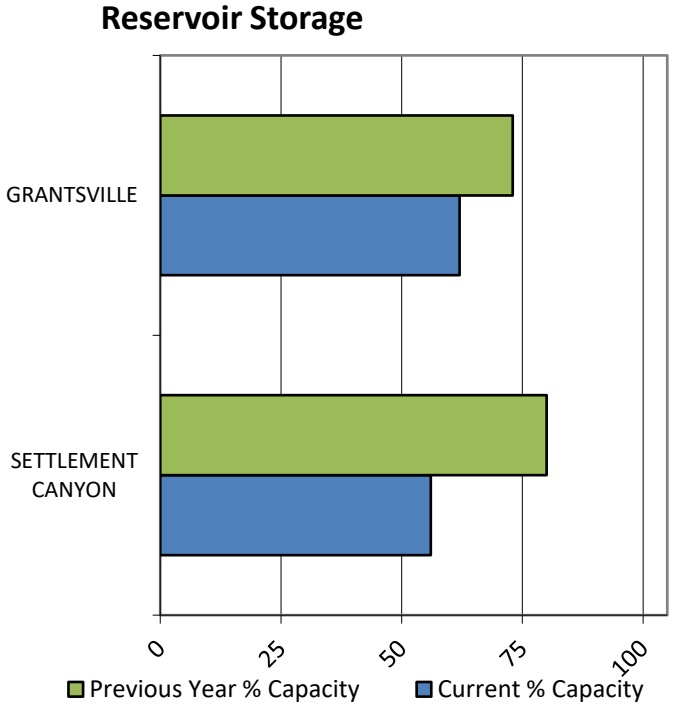
May 1, 2021

Snowpack in the Tooele Valley & West Desert Basins is much below normal at 62% of normal, compared to 78% last year. Precipitation in April was much below average at 57%, which brings the seasonal accumulation (Oct-Apr) to 71% of average. Soil moisture is at 70% compared to 70% last year. Reservoir storage is at 61% of capacity, compared to 75% last year. Forecast streamflow volumes range from 29% to 48% of average.









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Data Current as of: 5/6/2021 9:06:58 AM

Tooele Valley West Desert
Streamflow Forecasts - May 1, 2021

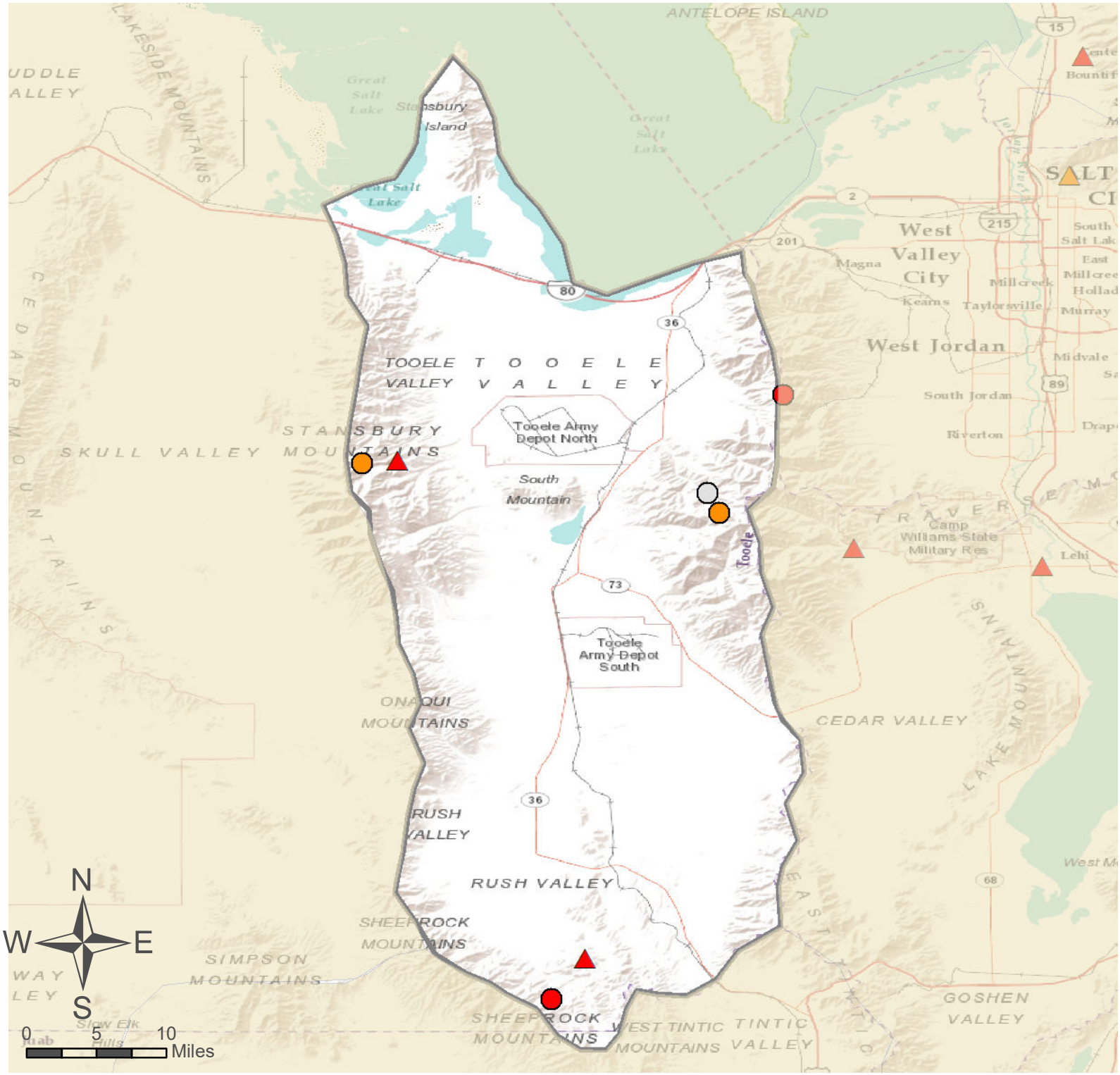
Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

Tooele Valley West Desert	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Vernon Ck nr Vernon								
	APR-JUL	0	0.08	0.4	29%	0.8	1.39	1.39
	MAY-JUL	0	0.03	0.3	30%	0.6	0.95	1.01
S Willow Ck nr Grantsville								
	APR-JUL	0.45	1.02	1.4	45%	1.79	2.4	3.1
	MAY-JUL	0.45	0.96	1.3	48%	1.64	2.2	2.7
Dunn Ck nr Park Valley								
	APR-JUL	0.09	0.87	1.4	48%	1.93	2.7	2.9
	MAY-JUL	0.03	0.78	1.3	50%	1.82	2.6	2.6
W Canyon Ck nr Cedar Fort								
	APR-JUL	0.05	0.18	0.52	30%	0.86	1.37	1.76
	MAY-JUL	0.05	0.19	0.51	33%	0.83	1.3	1.54

1) 90% and 10% exceedance probabilities are actually 95% and 5%
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
3) Median value used in place of average

Reservoir Storage End of April, 2021	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Settlement Canyon Reservoir	0.6	0.8	0.8	1.0
Grantsville Reservoir	2.1	2.4	2.8	3.3
Basin-wide Total	2.6	3.2	3.6	4.3
# of reservoirs	2	2	2	2

Watershed Snowpack Analysis May 1, 2021	# of Sites	% Median	Last Year % Median
Tooele Valley	3	53%	69%
Raft River	1	61%	76%
Deep Creek	0		
Northwestern Utah	2	61%	64%



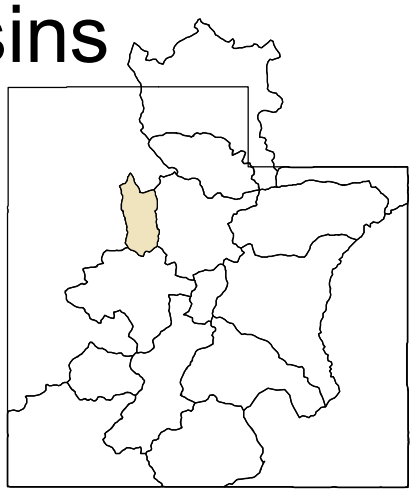
Tooele Valley & West Desert Basins

SNOTEL Site

Forecast Point

% of Normal

- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- > 150%
- No Normal



As of May 1, 2021:

62% of Normal SWE

71% of Normal Precipitation

57% of Normal Precipitation Last Month

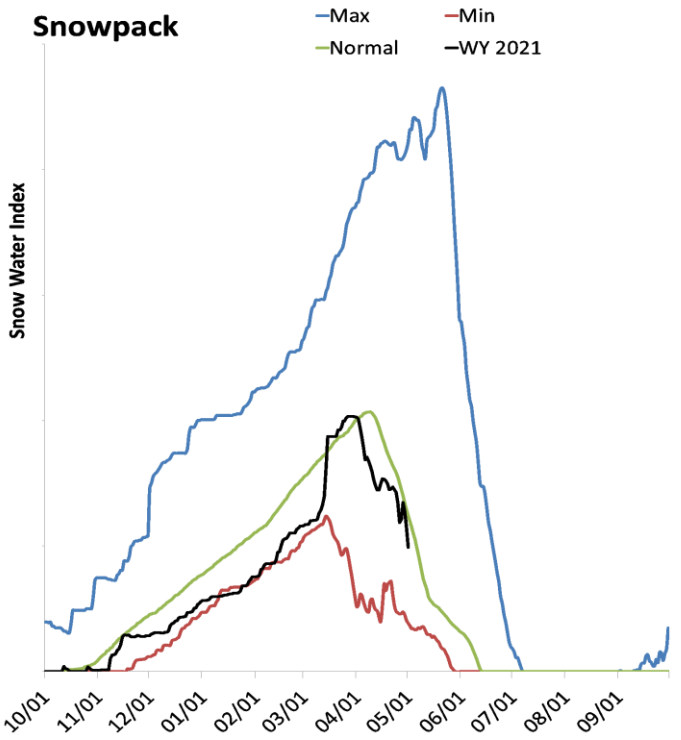
70% Saturation Soil Moisture

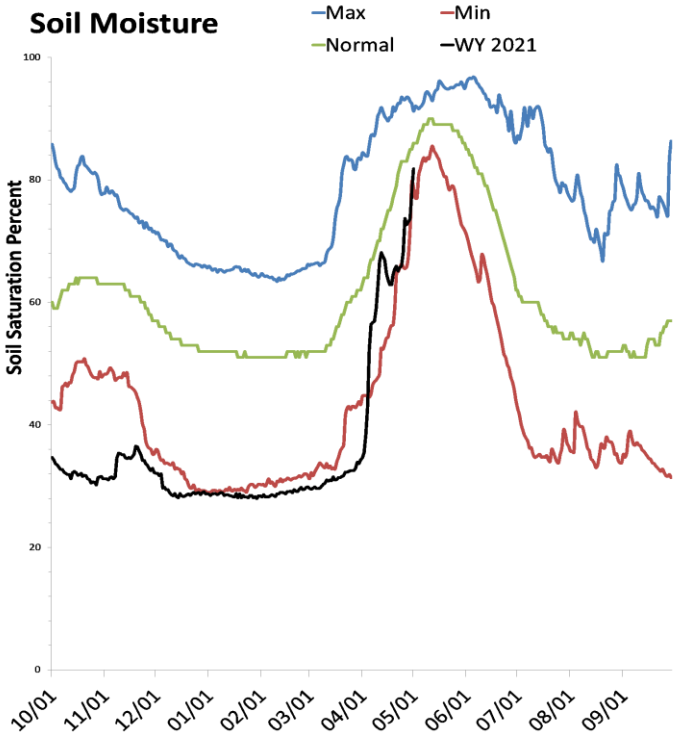
Tooele Valley & West Desert Basins

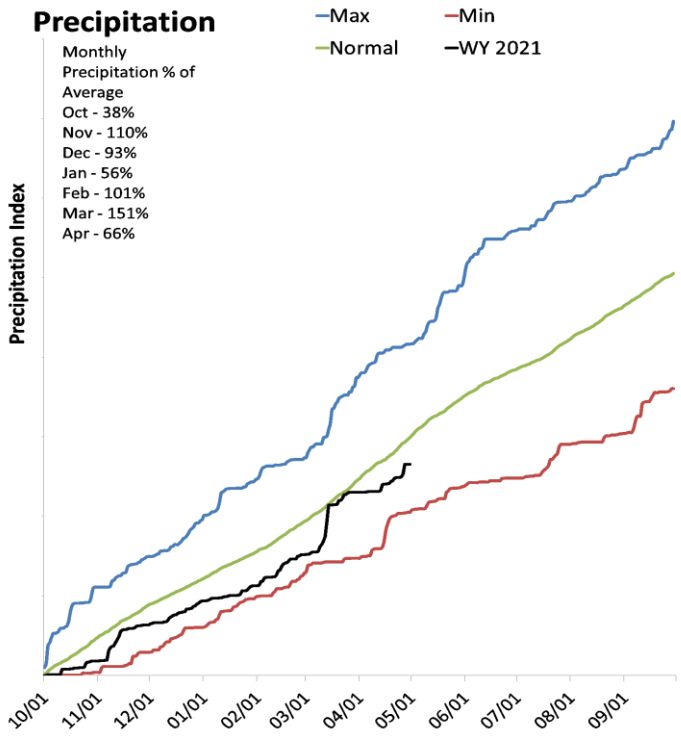
Northeastern Uinta Basin

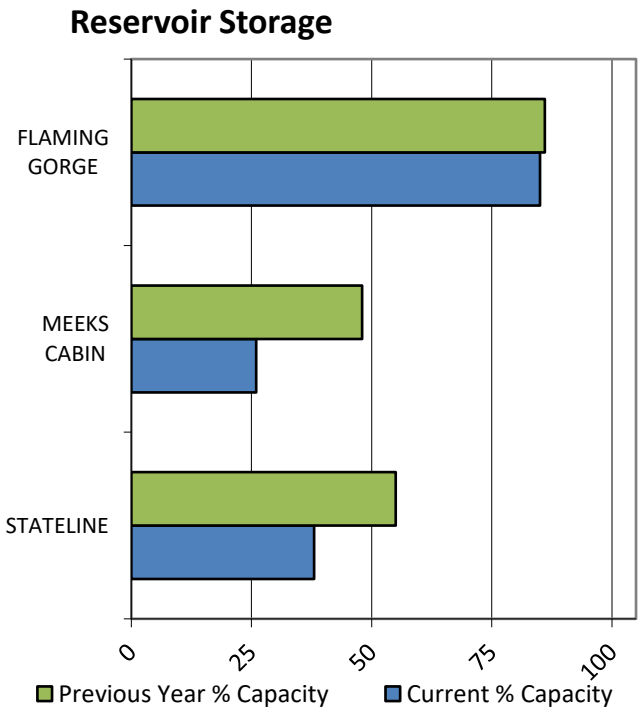
May 1, 2021

Snowpack in the Northeastern Uinta Basin is below normal at 80% of normal, compared to 104% last year. Precipitation in April was much below average at 67%, which brings the seasonal accumulation (Oct-Apr) to 89% of average. Soil moisture is at 78% compared to 88% last year. Reservoir storage is at 84% of capacity, compared to 85% last year. Forecast streamflow volumes range from 42% to 66% of average. The surface water supply index is 5% for the Blacks Fork, 13% for the Smiths Creek.









SNOTEL Data

Data Current as of: 5/6/2021 9:07:00 AM

Northeastern Uintas
Streamflow Forecasts - May 1, 2021

		Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast						
Northeastern Uintas	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Blacks Fk nr Robertson								
	APR-JUL	33	44	52	60%	60	71	86
	MAY-JUL	31	42	50	61%	58	69	82
EF of Smiths Fork nr Robertson [2]								
	APR-JUL	8.2	13.8	17.7	66%	22	28	27
	MAY-JUL	7.5	13.1	17	65%	21	27	26
Flaming Gorge Reservoir Inflow [2]								
	APR-JUL	156	335	455	46%	575	755	980
	MAY-JUL	84	265	385	46%	505	685	845
Ashley Ck nr Vernal								
	APR-JUL	12.4	17.2	21	42%	25	32	50
	MAY-JUL	11.4	16.2	20	43%	24	31	47
Big Brush Ck ab Red Fleet Reservoir								
	APR-JUL	6	8.2	10	48%	12	15.2	21
	MAY-JUL	5.3	7.5	9.3	51%	11.3	14.5	18.4

1) 90% and 10% exceedance probabilities are actually 95% and 5%
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
3) Median value used in place of average

Reservoir Storage End of April, 2021	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Flaming Gorge Reservoir	3178.3	3207.0	3039.0	3749.0
Stateline Reservoir	4.5	6.6	6.3	12.0
Meeks Cabin Reservoir	8.4	15.7	16.5	32.5
Basin-wide Total	3191.3	3229.3	3061.8	3793.5
# of reservoirs	3	3	3	3

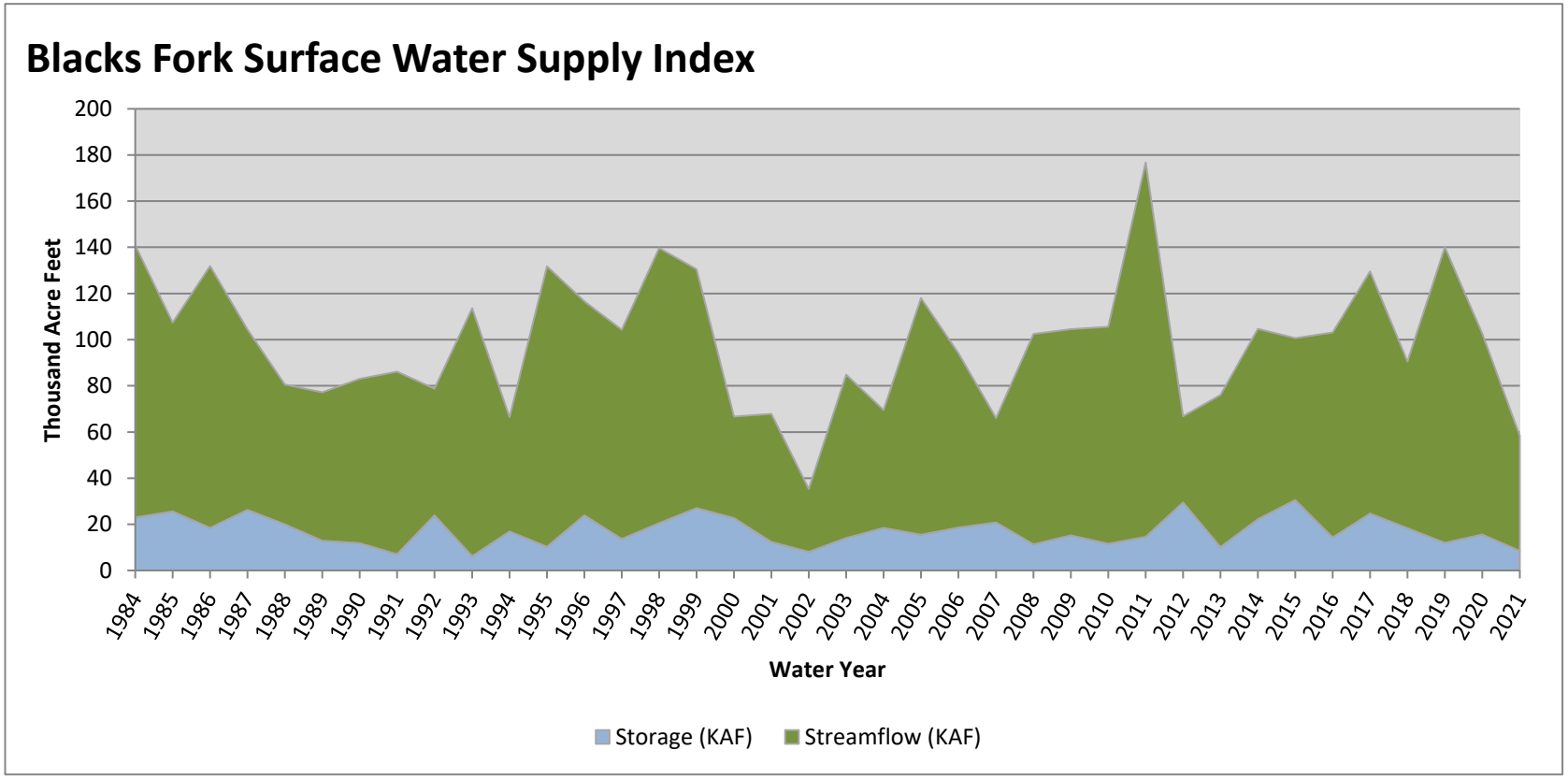
Watershed Snowpack Analysis May 1, 2021	# of Sites	% Median	Last Year % Median
Blacks Fork River	3	93%	103%
Upper Green	2	106%	101%
Ashley Brush Creeks	4	40%	99%

May 1, 2021

Surface Water Supply Index

Basin or Region	Apr EOM* Storage	MAY-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Blacks Fork	**8.43**	**50.00**	**58.43**	**5**	**-3.74**	**02, 07, 94, 00**

*EOM, end of month; #SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.

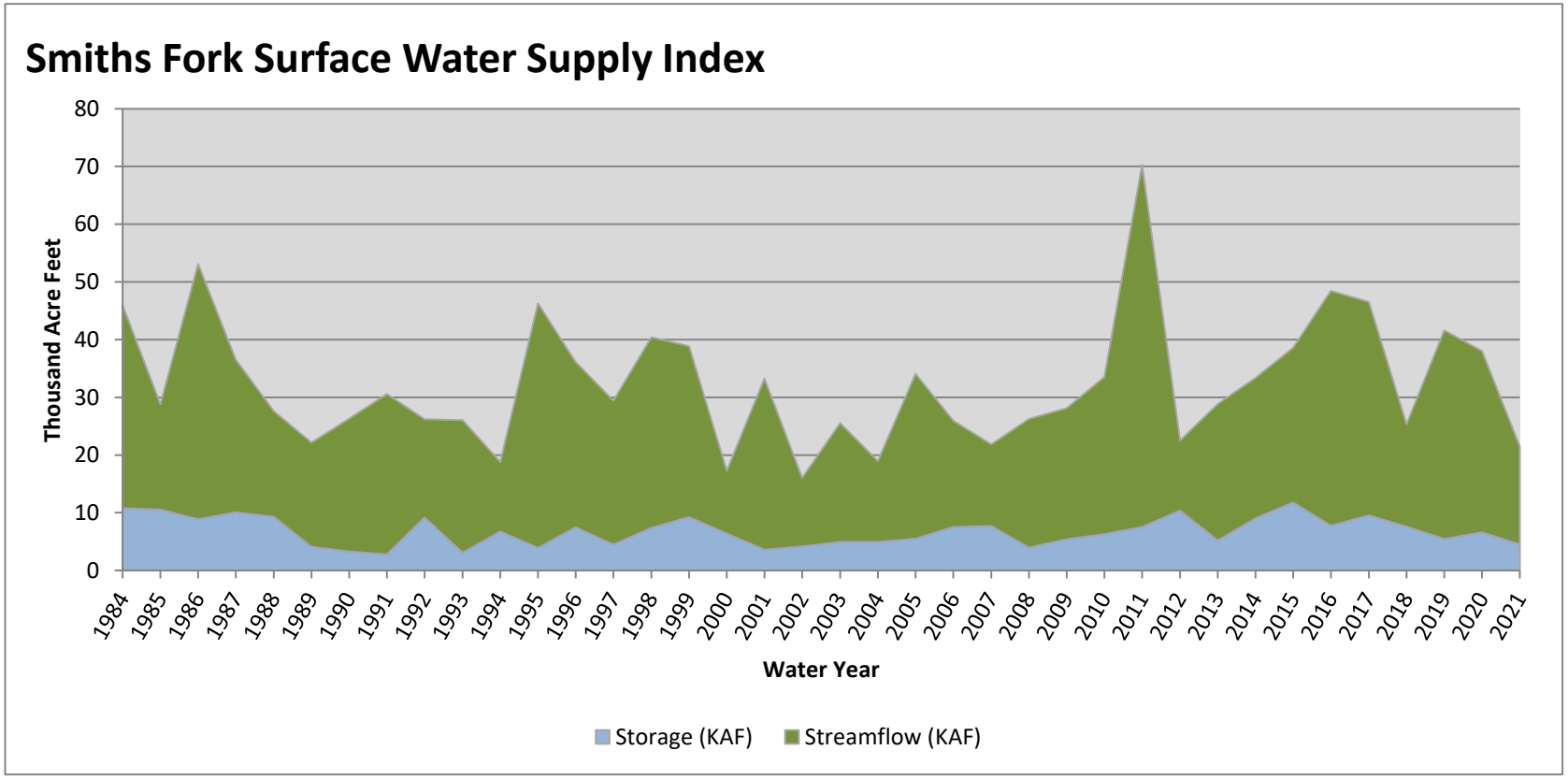


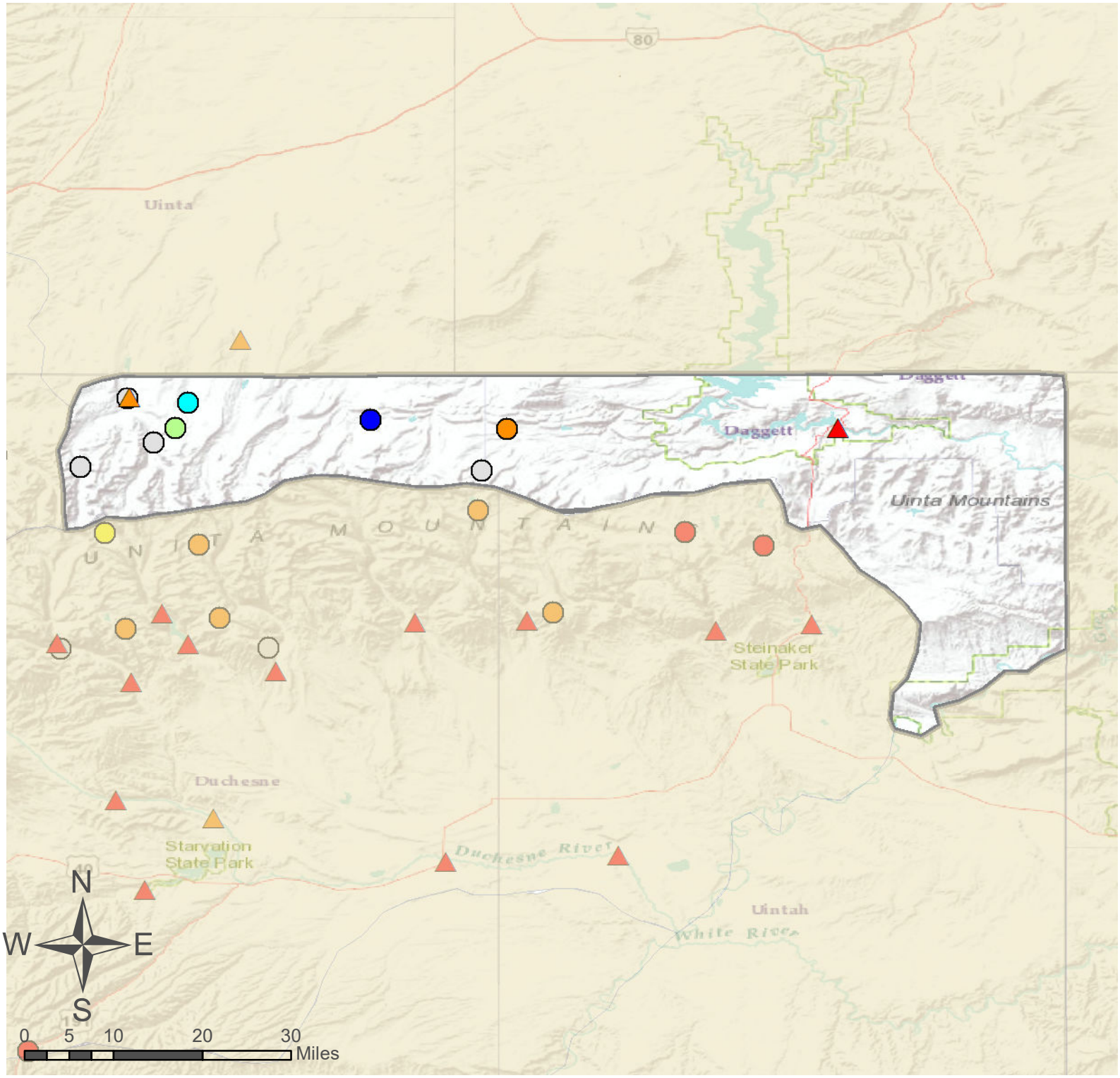
May 1, 2021

Surface Water Supply Index

Basin or Region	Apr EOM* Storage	MAY-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Smiths Fork	**4.51**	**17.00**	**21.51**	**13**	**-3.1**	**94, 04, 07, 89**

*EOM, end of month; #SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.





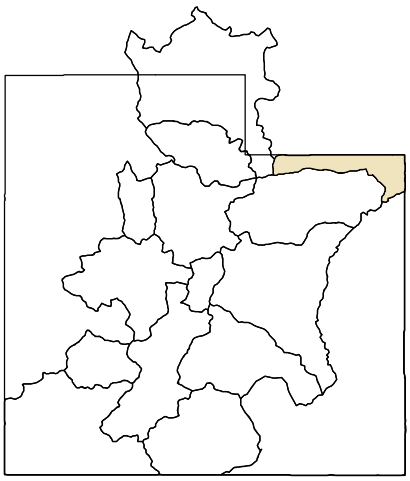
Northeastern Uinta Basin

SNOTEL Site

Forecast Point

% of Normal

- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- > 150%
- No Normal



As of May 1, 2021:

80% of Normal SWE

89% of Normal Precipitation

67% of Normal Precipitation Last Month

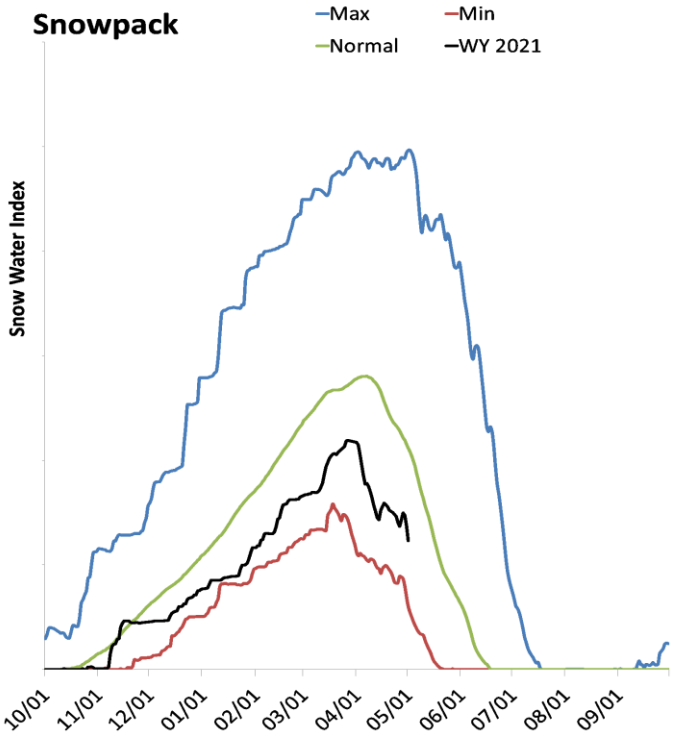
78% Saturation Soil Moisture

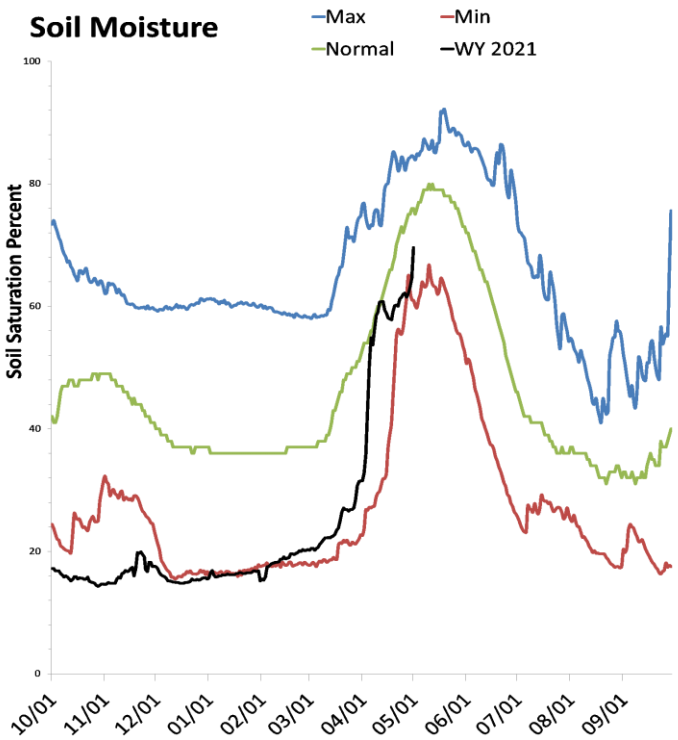
Northeastern Uinta Basin

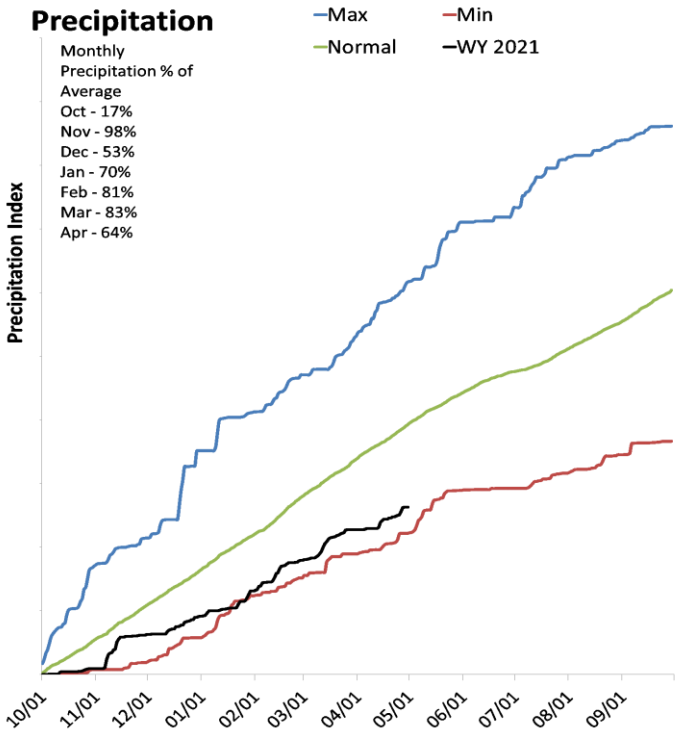
Duchesne River Basin

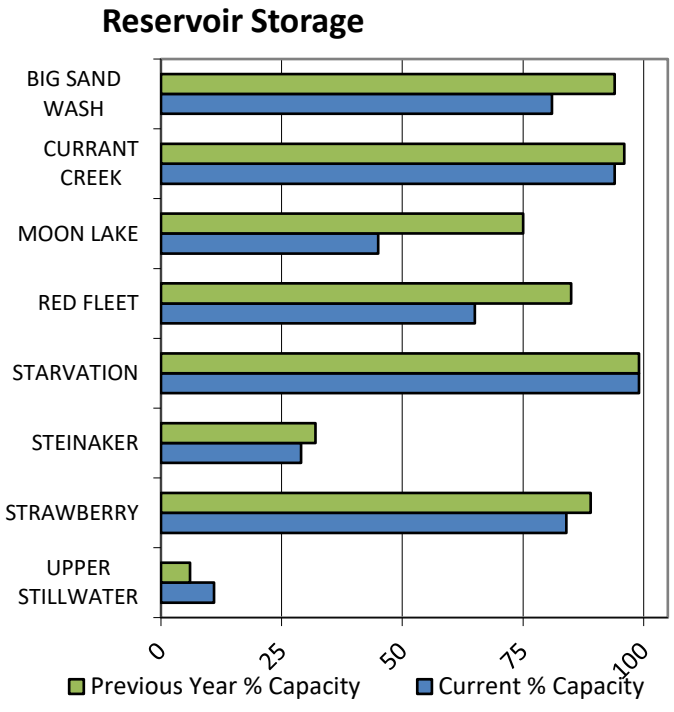
May 1, 2021

Snowpack in the Duchesne River Basin is much below average at 58% of normal, compared to 90% last year. Precipitation in April was much below average at 64%, which brings the seasonal accumulation (Oct-Apr) to 67% of average. Soil moisture is at 66% compared to 80% last year. Reservoir storage is at 81% of capacity, compared to 87% last year. Forecast streamflow volumes range from 22% to 49% of average. The surface water supply index is 33% for the Western Uintas, 7% for the Eastern Uintas.









SNOTEL Data

Data Current as of: 5/6/2021 9:07:03 AM

Duchesne River
Streamflow Forecasts - May 1, 2021

Duchesne River	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
		Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast						
WF Duchesne R at VAT Diversion								
	APR-JUL	3.5	5	6.2	33%	7.5	9.7	18.6
	MAY-JUL	2.8	4.3	5.5	32%	6.8	9	17.3
Duchesne R nr Tabiona [2]								
	APR-JUL	35	44	50	46%	57	68	108
	MAY-JUL	29	38	44	45%	51	62	98
Upper Stillwater Reservoir Inflow[2]								
	APR-JUL	26	30	34	46%	38	44	74
	MAY-JUL	22	26	30	42%	34	40	71
Rock Ck nr Mountain Home [2]								
	APR-JUL	31	36	40	45%	44	51	88
	MAY-JUL	26	31	35	42%	39	46	84
Duchesne R ab Knight Diversion [2]								
	APR-JUL	70	85	96	49%	108	126	195
	MAY-JUL	59	74	85	47%	97	115	179
Currant Ck Reservoir Inflow[2]								
	APR-JUL	2.6	3.9	5	25%	6.3	8.5	20
	MAY-JUL	1.6	2.9	4	23%	5.3	7.5	17.1
Strawberry R nr Soldier Springs [2]								
	APR-JUL	3.1	6.4	13	22%	19.6	30	58
	MAY-JUL	0.5	3.8	10.4	23%	17	27	46
Strawberry R nr Duchesne [2]								
	APR-JUL	12.5	21	28	25%	37	52	112
	MAY-JUL	7.5	15.7	23	25%	32	47	91
Lake Fork R ab Moon Lake Reservoir								
	APR-JUL	15.4	21	25	41%	29	37	61
	MAY-JUL	13.7	19	23	40%	27	35	58
Lake Fk R Bl Moon Lk nr Mountain Home[2]								
	APR-JUL	20	24	27	41%	30	35	66
	MAY-JUL	18	22	25	40%	28	33	63
Yellowstone R nr Altonah								
	APR-JUL	17.6	22	26	43%	30	36	61
	MAY-JUL	15	19.6	23	40%	27	33	57
Duchesne R at Myton [2]								
	APR-JUL	43	66	85	26%	108	147	330
	MAY-JUL	26	49	68	23%	91	130	290
Uinta R bl Powerplant Diversion nr Neola[2]								
	APR-JUL	18.7	25	30	41%	36	45	74
	MAY-JUL	16.5	23	28	39%	34	43	71
Whiterocks R nr Whiterocks								
	APR-JUL	13.6	18.6	22	41%	26	33	54
	MAY-JUL	12.1	17.1	21	41%	25	32	51
Duchesne R nr Randlett [2]								
	APR-JUL	39	65	88	23%	116	166	385
	MAY-JUL	21	47	70	20%	98	148	345
Ashley Ck nr Vernal								
	APR-JUL	12.4	17.2	21	42%	25	32	50
	MAY-JUL	11.4	16.2	20	43%	24	31	47
Big Brush Ck ab Red Fleet Reservoir								
	APR-JUL	6	8.2	10	48%	12	15.2	21
	MAY-JUL	5.3	7.5	9.3	51%	11.3	14.5	18.4

1) 90% and 10% exceedance probabilities are actually 95% and 5%
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
3) Median value used in place of average

Reservoir Storage End of April, 2021	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Steinaker Reservoir	9.8	10.8	25.3	33.4
Red Fleet Reservoir	16.7	21.7	19.8	25.7
Big Sand Wash Reservoir	20.8	24.2		25.7
Upper Stillwater Reservoir	3.6	1.9	2.9	32.5
Starvation Reservoir	163.0	163.3	151.9	164.1
Moon Lake Reservoir	16.0	27.0	27.6	35.8
Currant Creek Reservoir	14.5	14.9	14.9	15.5
Strawberry Reservoir	925.7	986.8	678.4	1105.9
Basin-wide Total	1149.2	1226.5	920.8	1412.9
# of reservoirs	7	7	7	7

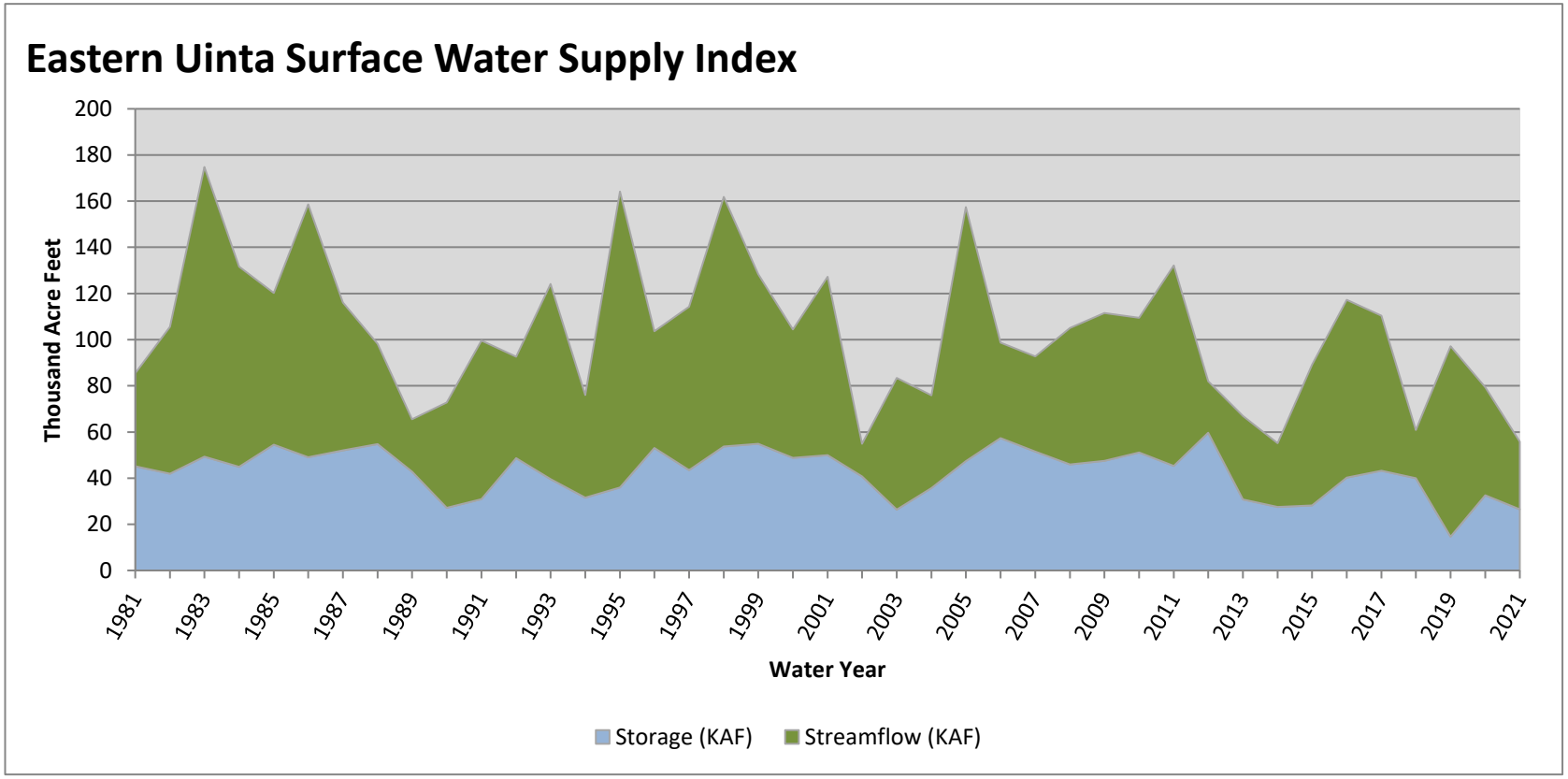
Watershed Snowpack Analysis May 1, 2021	# of Sites	% Median	Last Year % Median
Strawberry River	5	1%	38%
Lakefork Yellowstone Rivers	7	69%	98%
Uinta Whiterocks River	2	51%	90%

May 1, 2021

Surface Water Supply Index

Basin or Region	Apr EOM* Storage	MAY-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Eastern Uinta	**26.47**	**29.30**	**55.77**	**7**	**-3.57**	**02, 14, 18, 89**

*EOM, end of month; #SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.

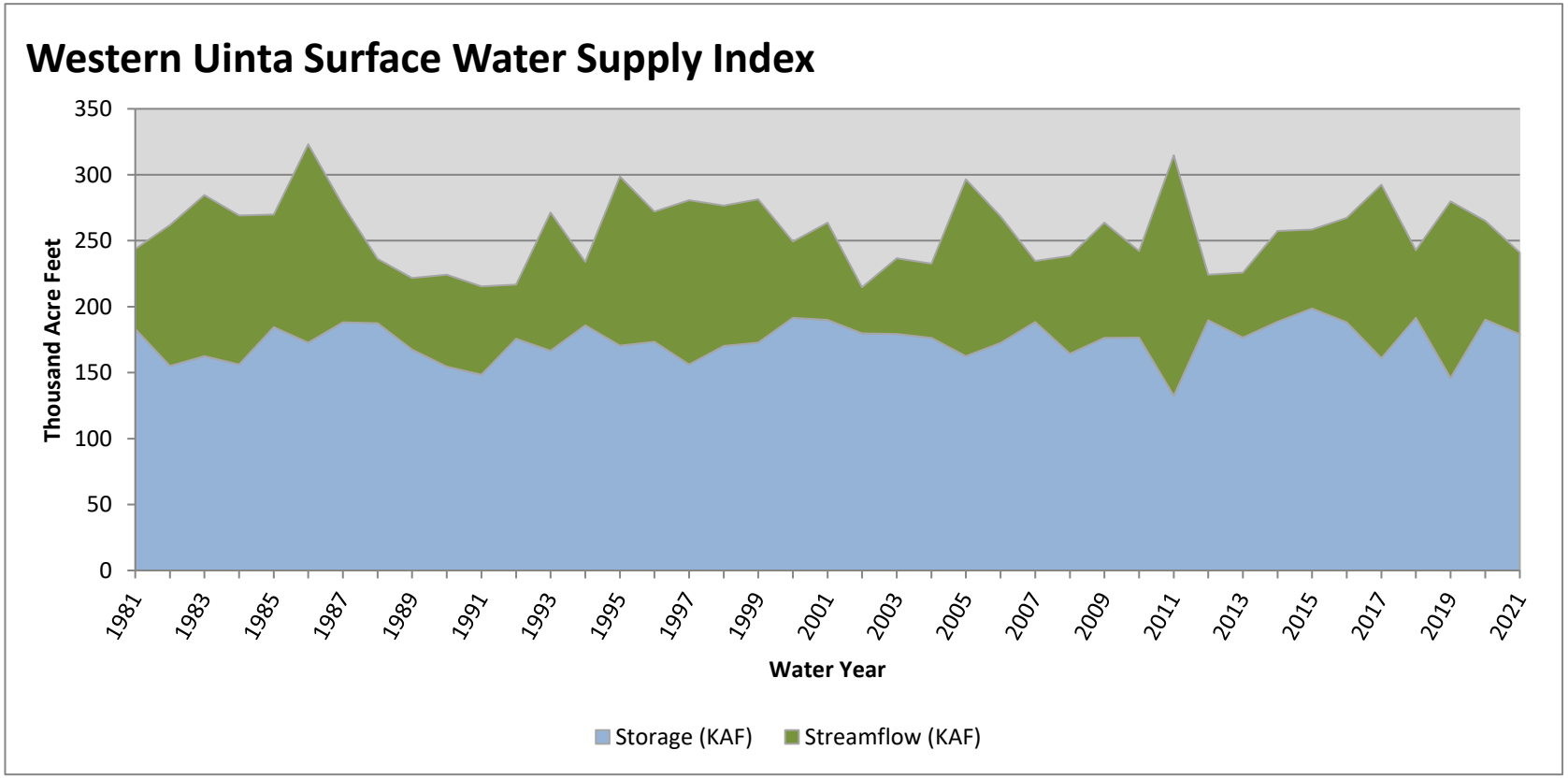


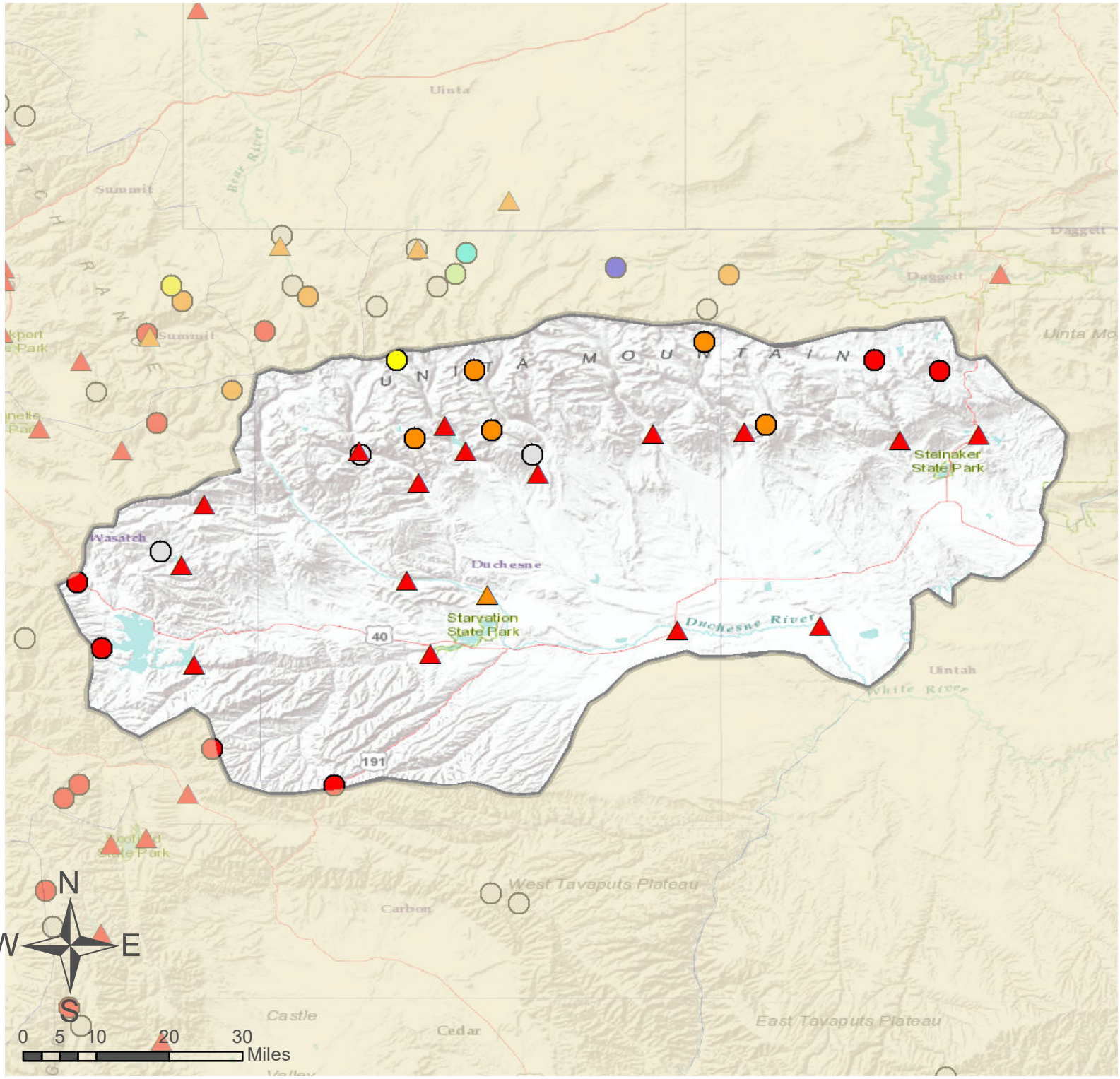
May 1, 2021

Surface Water Supply Index

Basin or Region	Apr EOM* Storage	MAY-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Western Uinta	**178.97**	**62.00**	**240.97**	**33**	**-1.39**	**03, 08, 10, 18**

*EOM, end of month; #SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.





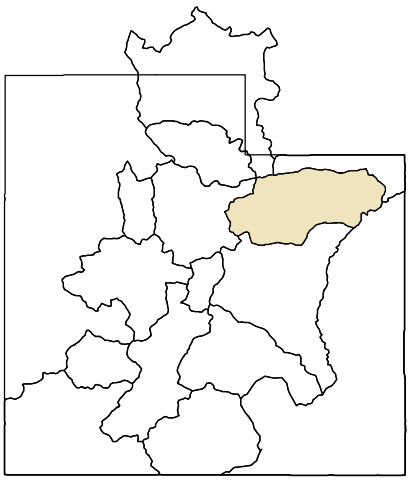
Duchesne River Basin

SNOTEL Site

Forecast Point

% of Normal

- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- > 150%
- No Normal



As of May 1, 2021:

58% of Normal SWE

67% of Normal Precipitation

64% of Normal Precipitation Last Month

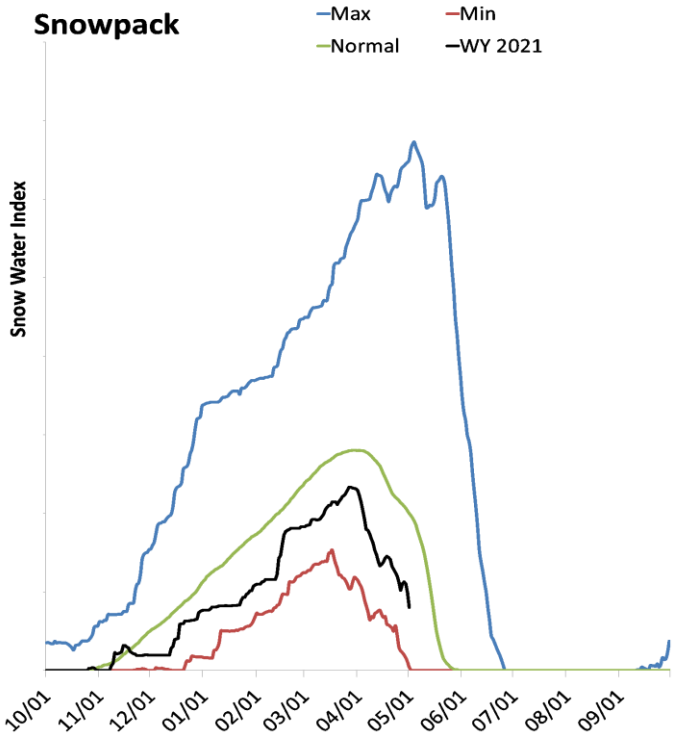
66% Saturation Soil Moisture

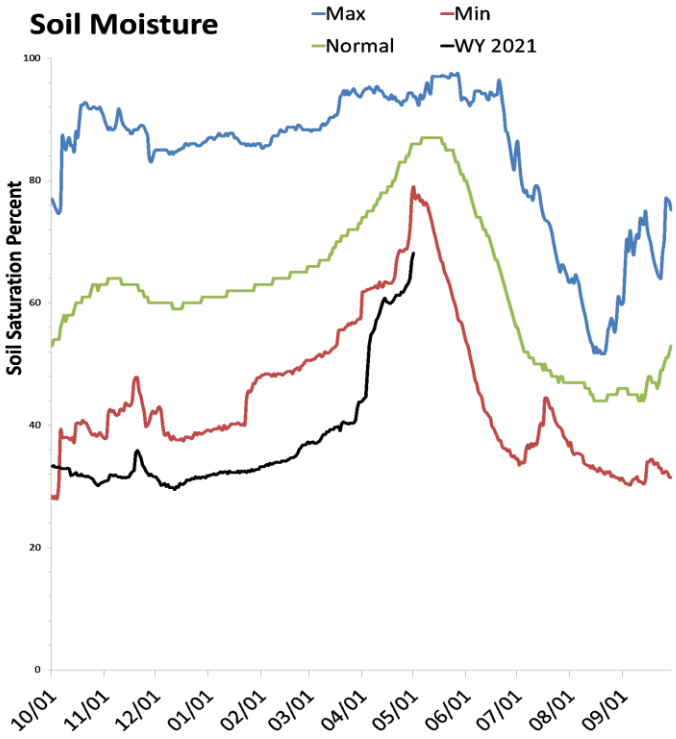
Duchesne River Basin

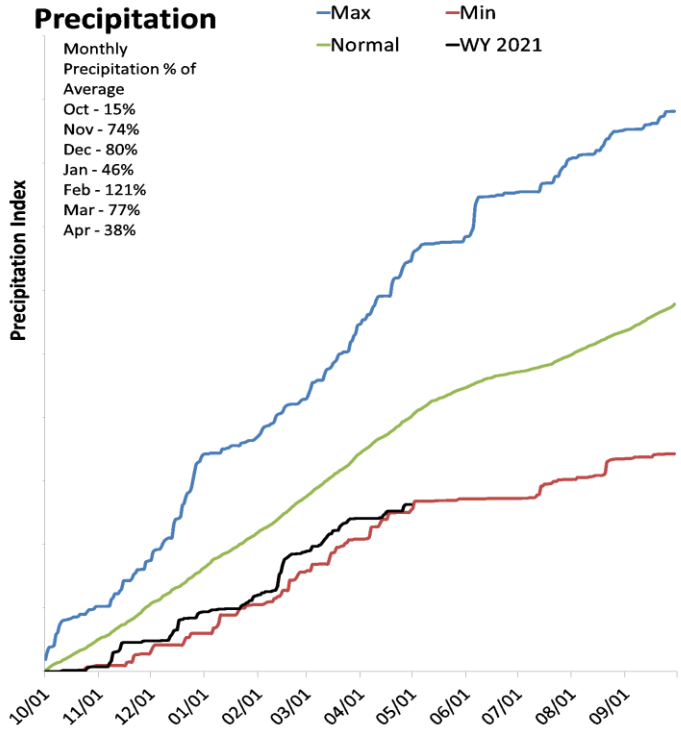
San Pitch River Basin

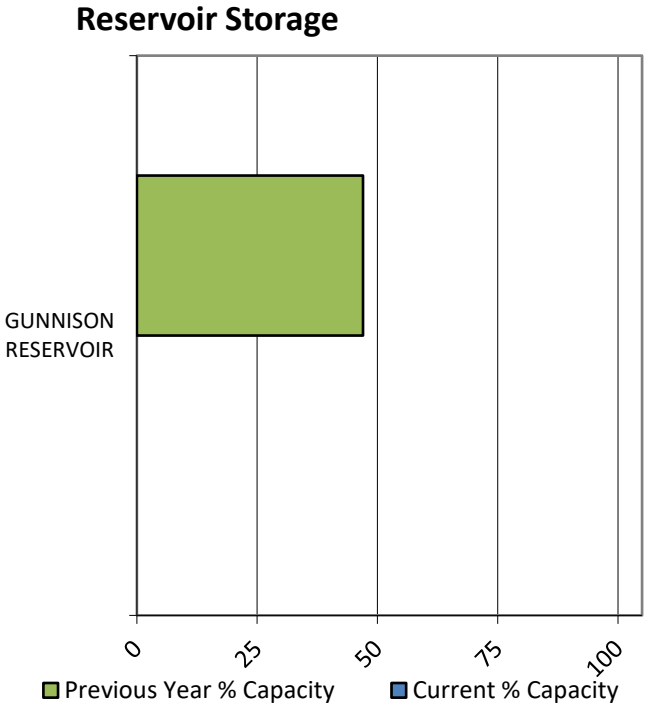
May 1, 2021

Snowpack in the San Pitch River Basin is much below normal at 40% of normal, compared to 82% last year. Precipitation in April was much below average at 39%, which brings the seasonal accumulation (Oct-Apr) to 66% of average. Soil moisture is at 67% compared to 82% last year. Reservoir storage is at 0% of capacity, compared to 47% last year. The forecast streamflow volume for Manti Creek is 51% of average. The surface water supply index is 5% for the San Pitch.









SNOTEL Data

Data Current as of: 5/6/2021 9:07:14 AM

San Pitch River
Streamflow Forecasts - May 1, 2021

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

San Pitch River	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Manti Ck bl Dugway Ck nr Manti								
	APR-JUL	5.5	7.2	8.5	51%	9.9	12.2	16.7
	MAY-JUL	5.1	6.8	8.1	52%	9.4	11.7	15.5
Sevier R nr Gunnison								
	APR-JUL	3	21	41	41%	61	92	99
	MAY-JUL	0.09	22	38	44%	54	76	86

1) 90% and 10% exceedance probabilities are actually 95% and 5%
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
3) Median value used in place of average

Reservoir Storage End of April, 2021	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Gunnison Reservoir	0.0	9.6	14.2	20.3
Basin-wide Total		9.6	14.2	20.3
# of reservoirs	1	1	1	1

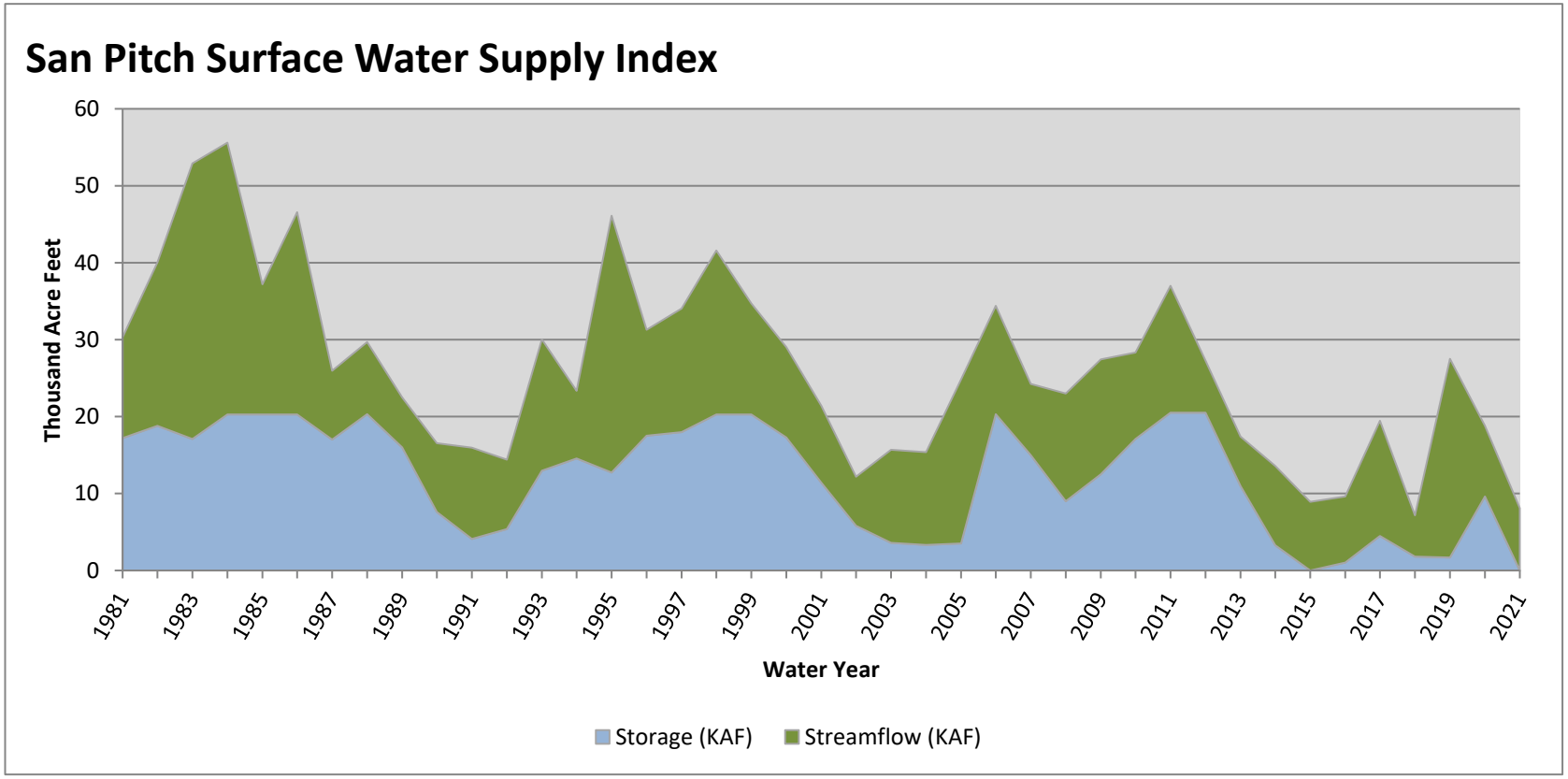
Watershed Snowpack Analysis May 1, 2021	# of Sites	% Median	Last Year % Median
Upper San Pitch	3	37%	83%
Lower San Pitch	6	47%	78%

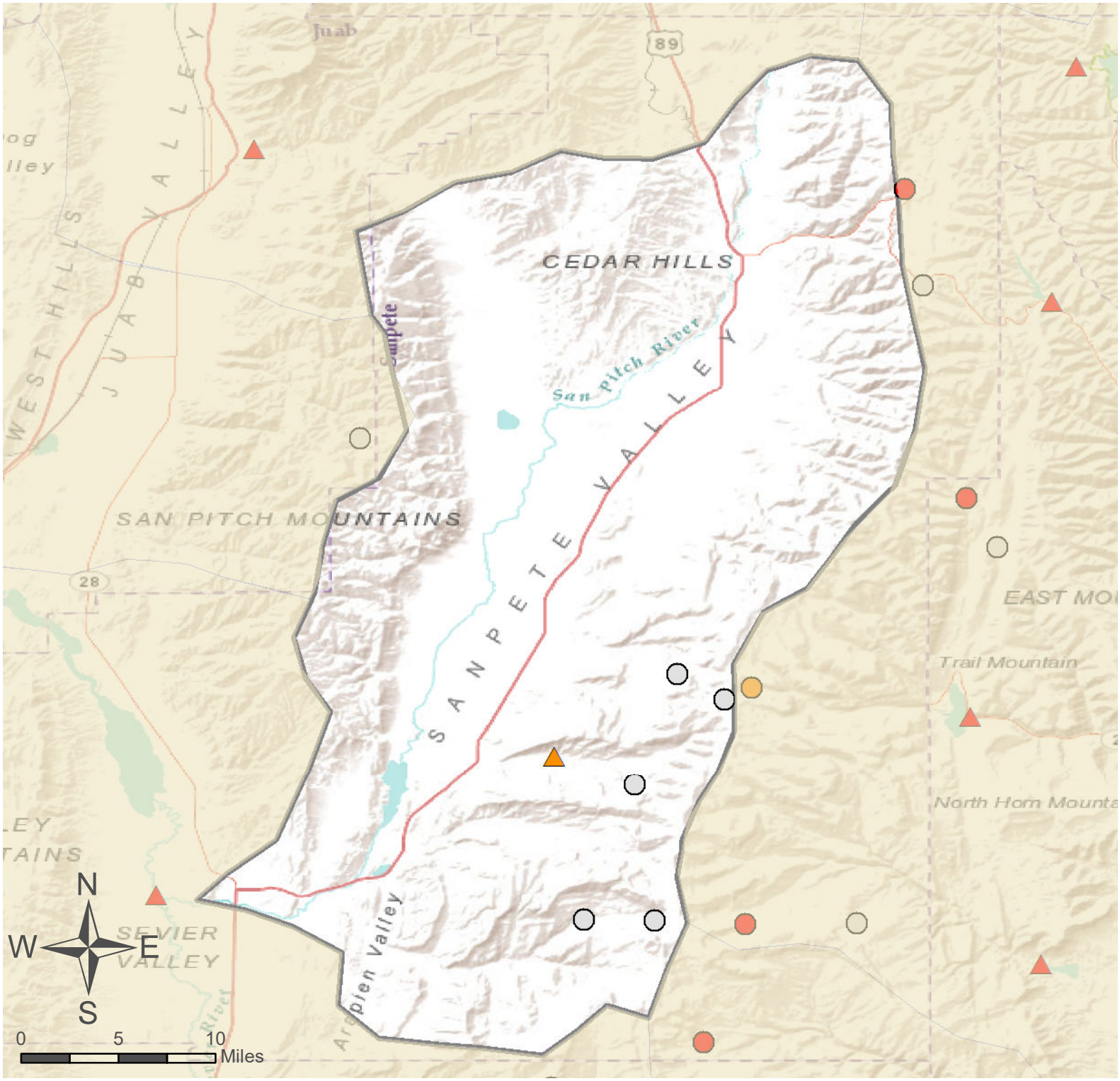
May 1, 2021

Surface Water Supply Index

Basin or Region	Apr EOM* Storage	MAY-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
San Pitch	**0.00**	**8.10**	**8.10**	**5**	**-3.77**	**18, 15, 16, 02**

*EOM, end of month; #SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.





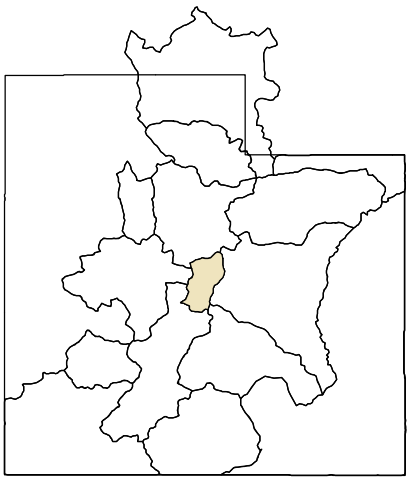
San Pitch River Basin

SNOTEL Site

Forecast Point

% of Normal

- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- > 150%
- No Normal



As of May 1, 2021:

40% of Normal SWE

66% of Normal Precipitation

39% of Normal Precipitation Last Month

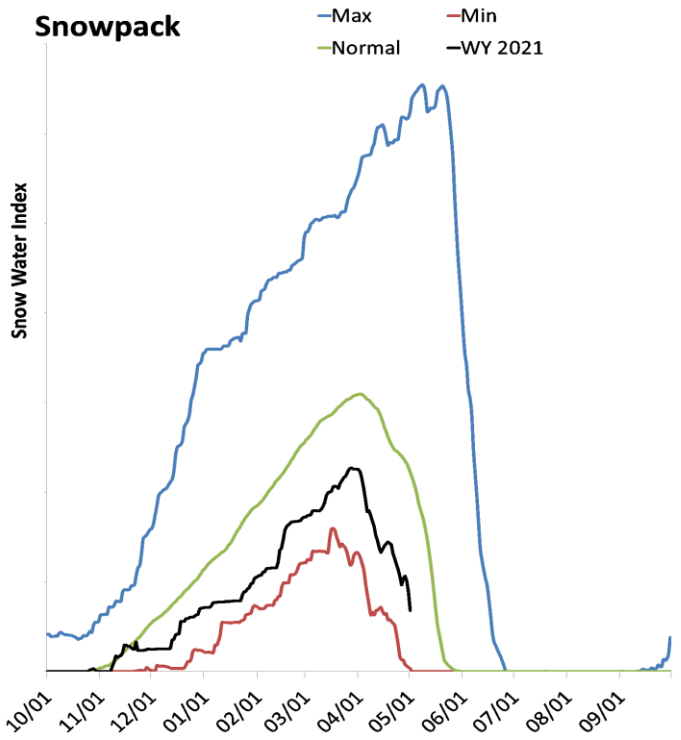
67% Saturation Soil Moisture

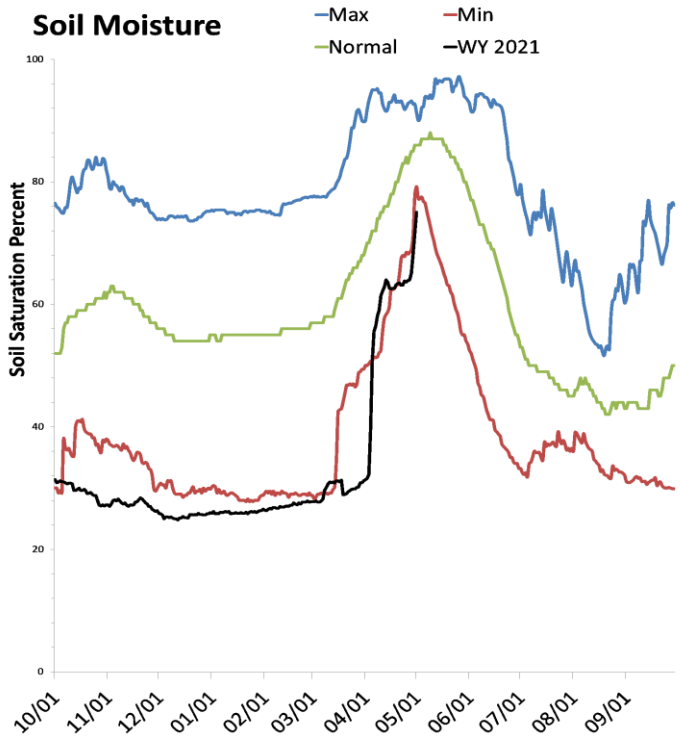
San Pitch River Basin

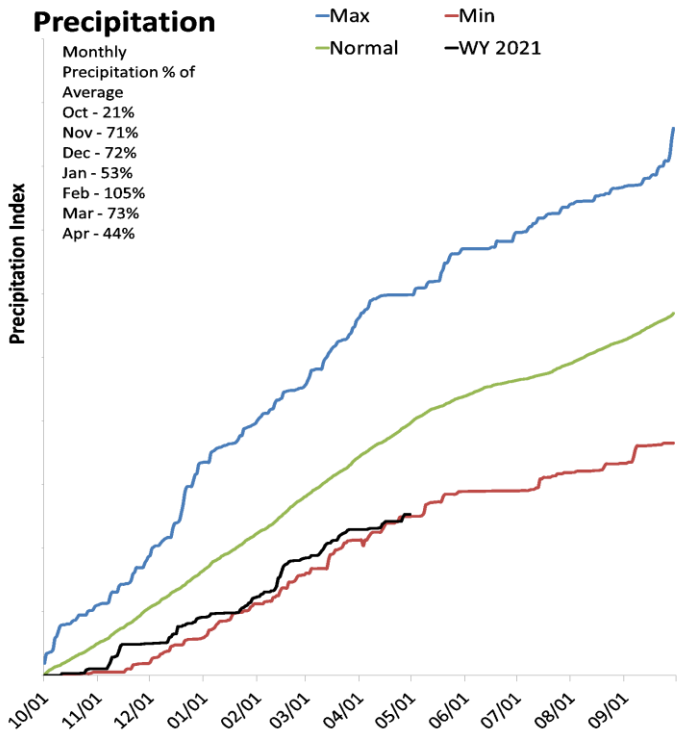
Price & San Rafael Basins

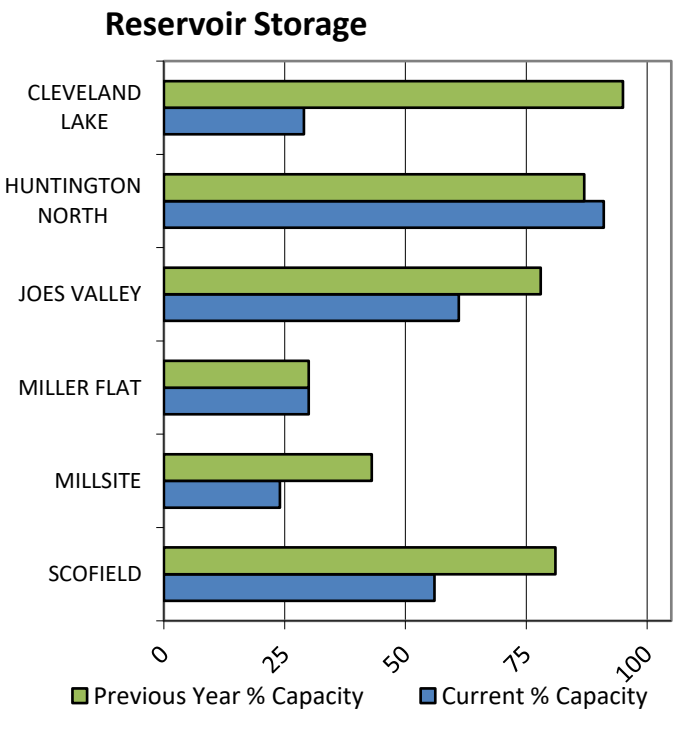
May 1, 2021

Snowpack in the Price & San Rafael Basins is much below normal at 31% of normal, compared to 74% last year. Precipitation in April was much below average at 44%, which brings the seasonal accumulation (Oct-Apr) to 64% of average. Soil moisture is at 73% compared to 86% last year. Reservoir storage is at 55% of capacity, compared to 76% last year. Forecast streamflow volumes range from 15% to 42% of average. The surface water supply index is 29% for the Price River, 2% for Joe's Valley, 5% for Ferron Creek.









SNOTEL Data

Data Current as of: 5/6/2021 9:07:05 AM

Price San Rafael Rivers
Streamflow Forecasts - May 1, 2021

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

Price San Rafael Rivers	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Fish Ck ab Reservoir nr Scofield								
	APR-JUL	5.5	8	10	33%	12.3	16.1	30
	MAY-JUL	4.3	6.8	8.8	34%	11.1	14.9	26
Price R nr Scofield Reservoir[2]								
	APR-JUL	5.6	8.9	11.7	29%	14.9	21	41
	MAY-JUL	3.6	6.9	9.7	28%	12.9	18.6	35
White R bl Tabbyune Creek								
	APR-JUL	1.03	1.76	2.4	15%	3.2	4.5	15.5
	MAY-JUL	0.76	1.49	2.1	18%	2.9	4.2	11.9
Green R at Green River, UT [2]								
	APR-JUL	770	975	1130	38%	1300	1570	2960
	MAY-JUL	610	815	970	38%	1140	1410	2540
Electric Lake Inflow [2]								
	APR-JUL	2.4	3.3	4	30%	4.8	6.1	13.3
	MAY-JUL	1.98	2.9	3.6	31%	4.4	5.7	11.8
Huntington Ck nr Huntington [2]								
	APR-JUL	11.7	14.6	16.8	42%	19.2	23	40
	MAY-JUL	10.8	13.7	15.9	43%	18.3	22	37
Joes Valley Reservoir Inflow[2]								
	APR-JUL	10.4	14.3	17.3	31%	21	27	56
	MAY-JUL	8.9	12.8	15.8	30%	19.2	25	52
Ferron Ck (Upper Station) nr Ferron								
	APR-JUL	9.1	11.1	12.5	33%	14	16.4	38
	MAY-JUL	8.1	10.1	11.5	33%	13	15.4	35

1) 90% and 10% exceedance probabilities are actually 95% and 5%
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
3) Median value used in place of average

Reservoir Storage End of April, 2021	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Joes Valley Reservoir	37.4	47.8	40.1	61.6
Millsite	4.0	7.2	11.2	16.7
Huntington North Reservoir	3.8	3.7	3.9	4.2
Cleveland Lake	1.6	5.2		5.4
Miller Flat Reservoir	1.6	1.6		5.2
Scofield Reservoir	36.8	53.6	33.2	65.8
Basin-wide Total	82.0	112.2	88.4	148.3
# of reservoirs	4	4	4	4

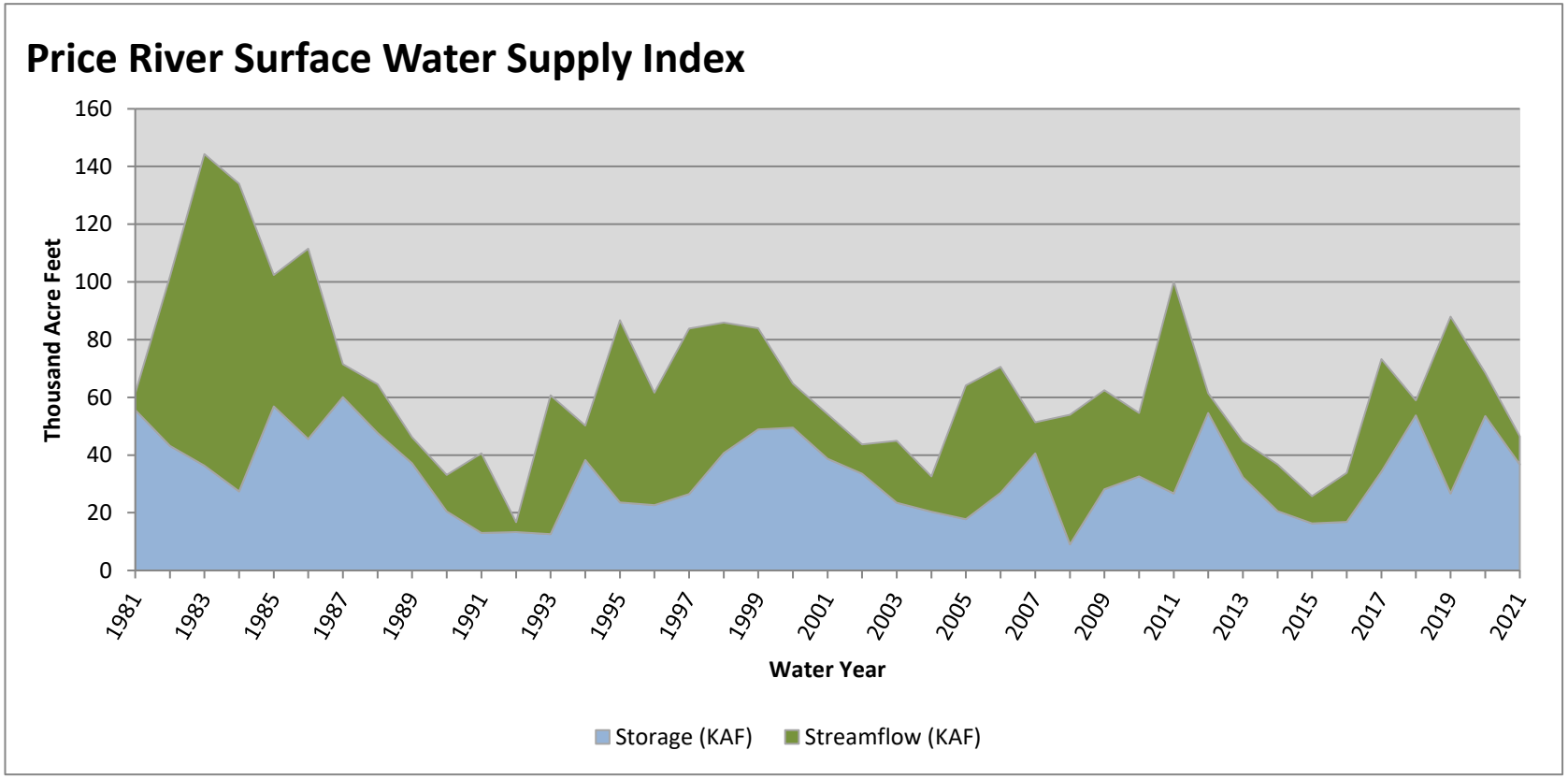
Watershed Snowpack Analysis May 1, 2021	# of Sites	% Median	Last Year % Median
Price River	4	21%	64%
San Rafael	6	47%	86%

May 1, 2021

Surface Water Supply Index

Basin or Region	Apr EOM* Storage	MAY-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Price River	**36.78**	**9.70**	**46.48**	**29**	**-1.79**	**03, 89, 94, 07**

*EOM, end of month; #SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.

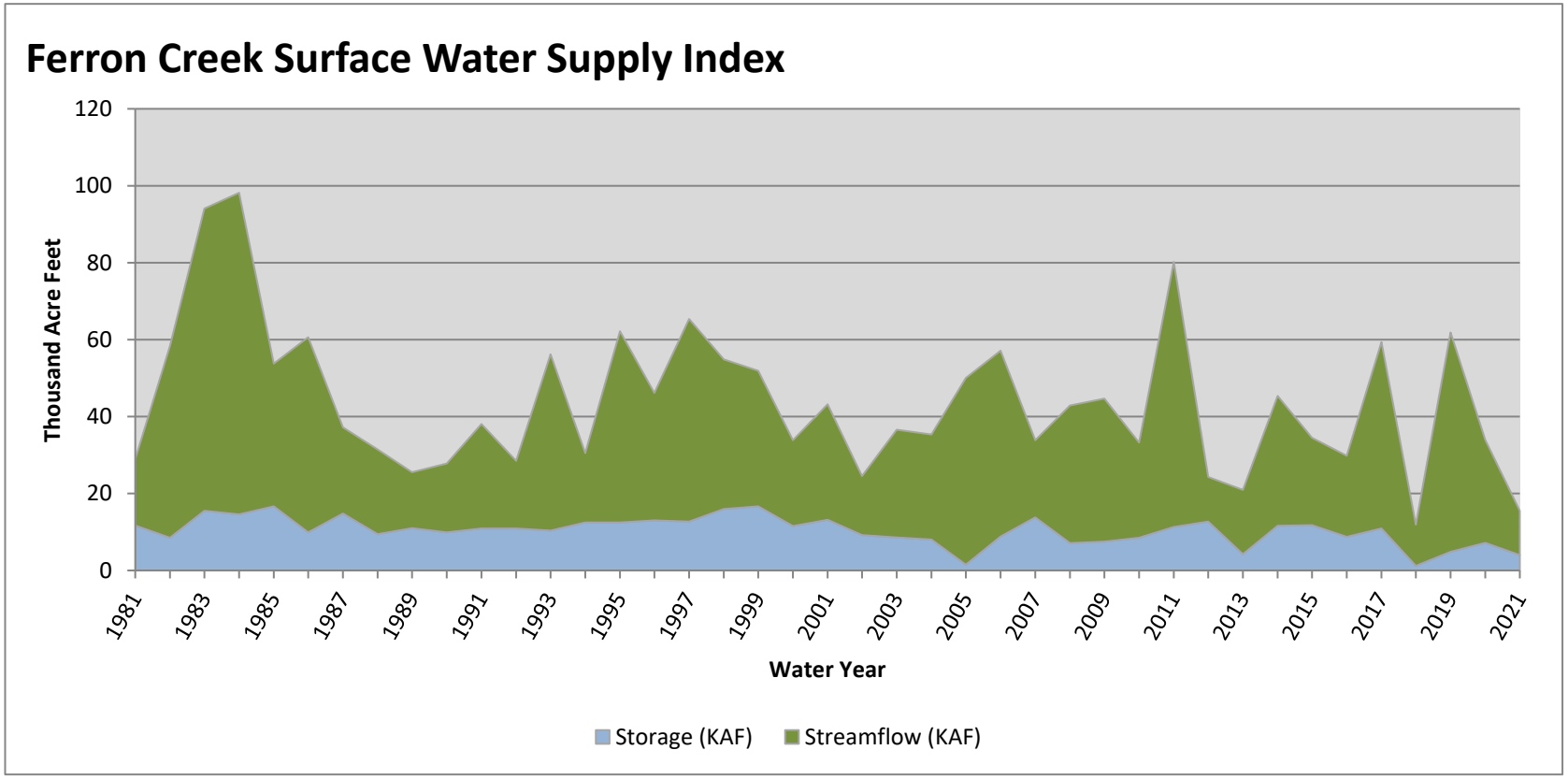


May 1, 2021

Surface Water Supply Index

Basin or Region	Apr EOM* Storage	MAY-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Ferron Creek	**4.01**	**11.50**	**15.51**	**5**	**-3.77**	**18, 13, 12, 02**

*EOM, end of month; #SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.

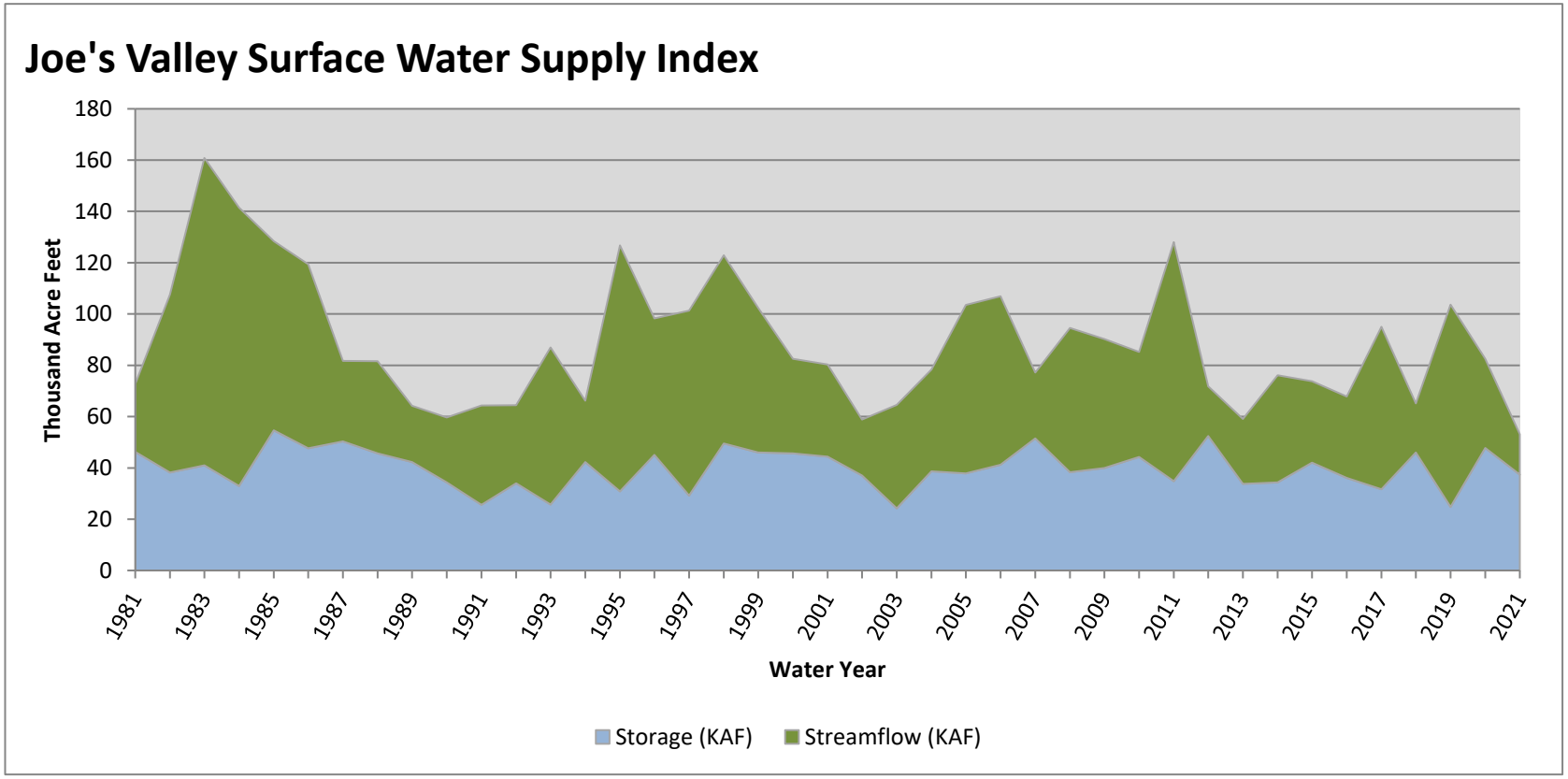


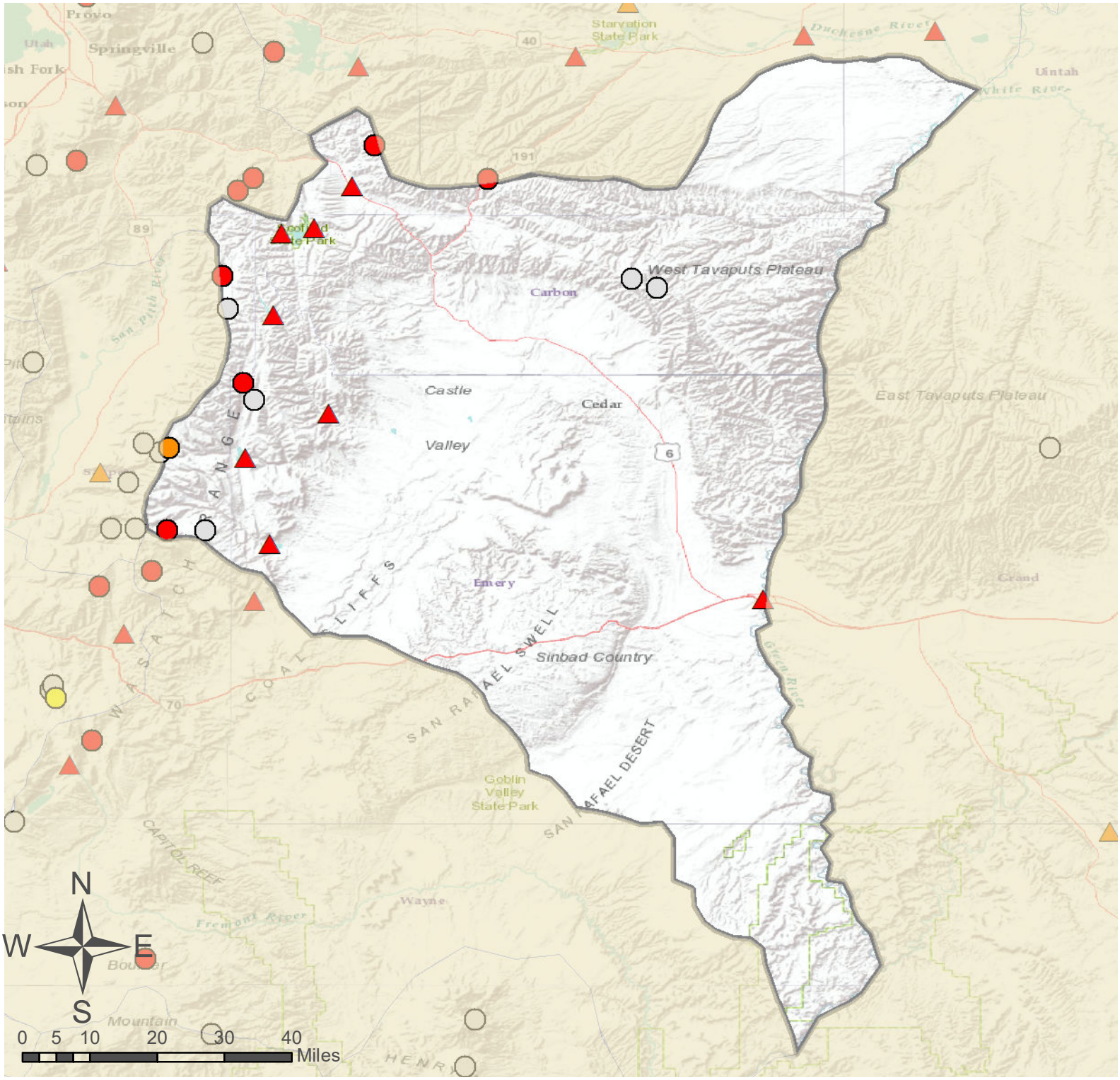
May 1, 2021

Surface Water Supply Index

Basin or Region	Apr EOM* Storage	MAY-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Joe's Valley	**37.36**	**15.80**	**53.16**	**2**	**-3.97**	**02, 13, 90, 89**

*EOM, end of month; #SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.





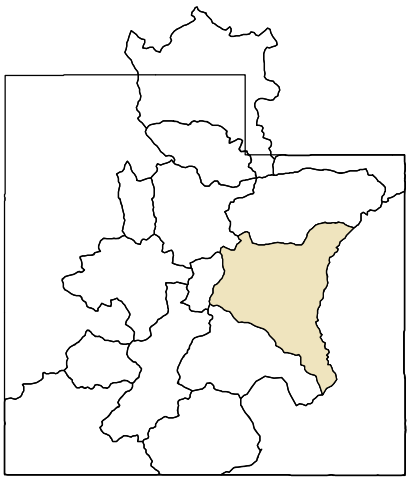
Price & San Rafael Basins

SNOTEL Site

Forecast Point

% of Normal

- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- > 150%
- No Normal



As of May 1, 2021:

31% of Normal SWE

64% of Normal Precipitation

44% of Normal Precipitation Last Month

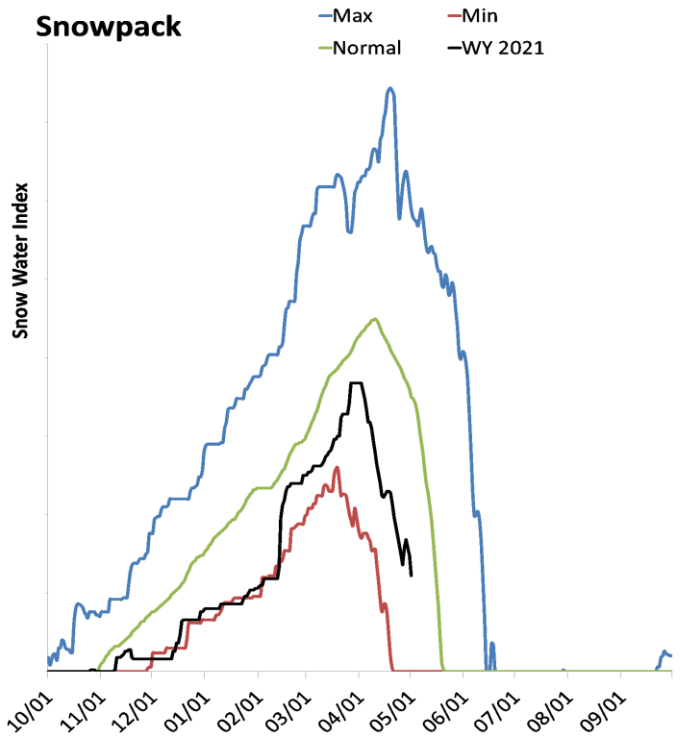
73% Saturation Soil Moisture

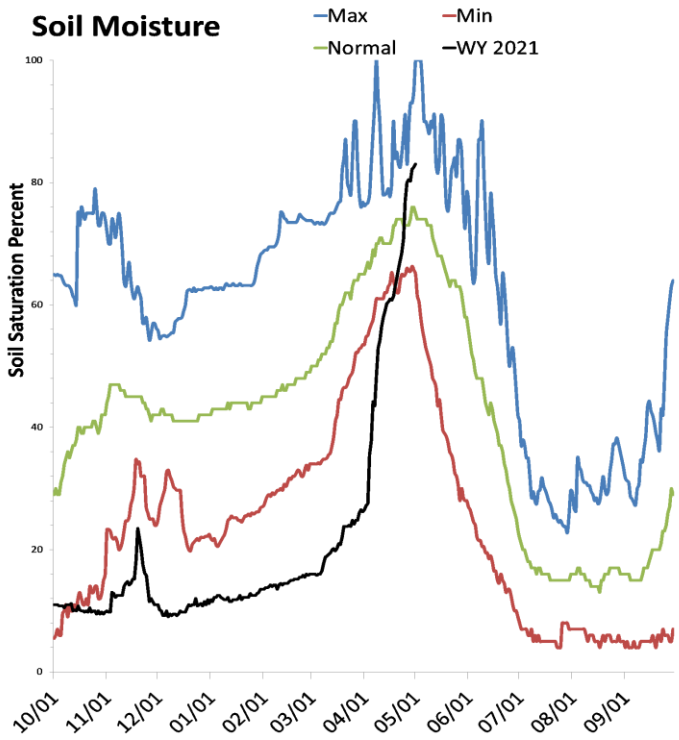
Price & San Rafael Basins

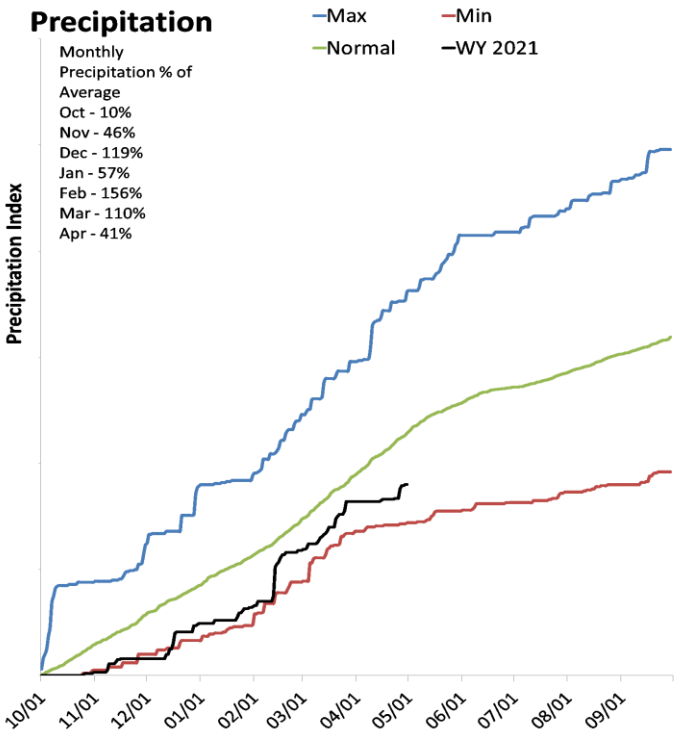
Lower Sevier Basin

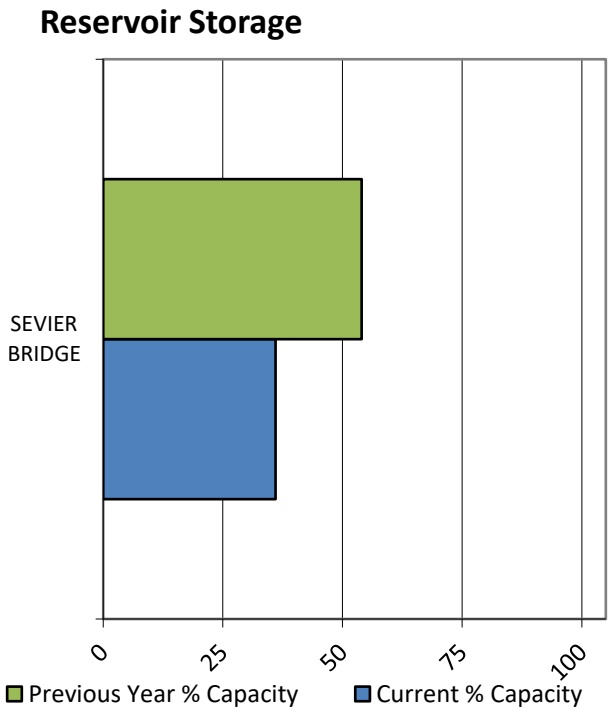
May 1, 2021

Snowpack in the Lower Sevier Basin is much below normal at 35% of normal, compared to 55% last year. Precipitation in April was much below average at 41%, which brings the seasonal accumulation (Oct-Apr) to 79% of average. Soil moisture is at 81% compared to 79% last year. Reservoir storage is at 36% of capacity, compared to 54% last year. Forecast streamflow volume for the Sevier River near Gunnison is 41% of average. The surface water supply index is 14% for the Lower Sevier.









SNOTEL Data

Data Current as of: 5/6/2021 9:07:16 AM

Lower Sevier
Streamflow Forecasts - May 1, 2021

Lower Sevier	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
		Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast						
Chicken Ck nr Levan								
Sevier R nr Gunnison								
	APR-JUL	3	21	41	41%	61	92	99
	MAY-JUL	0.09	22	38	44%	54	76	86
Oak Ck nr Oak City								

1) 90% and 10% exceedance probabilities are actually 95% and 5%
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
3) Median value used in place of average

Reservoir Storage End of April, 2021	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Sevier Bridge Reservoir	85.2	128.3	172.9	236.0
Basin-wide Total	85.2	128.3	172.9	236.0
# of reservoirs	1	1	1	1

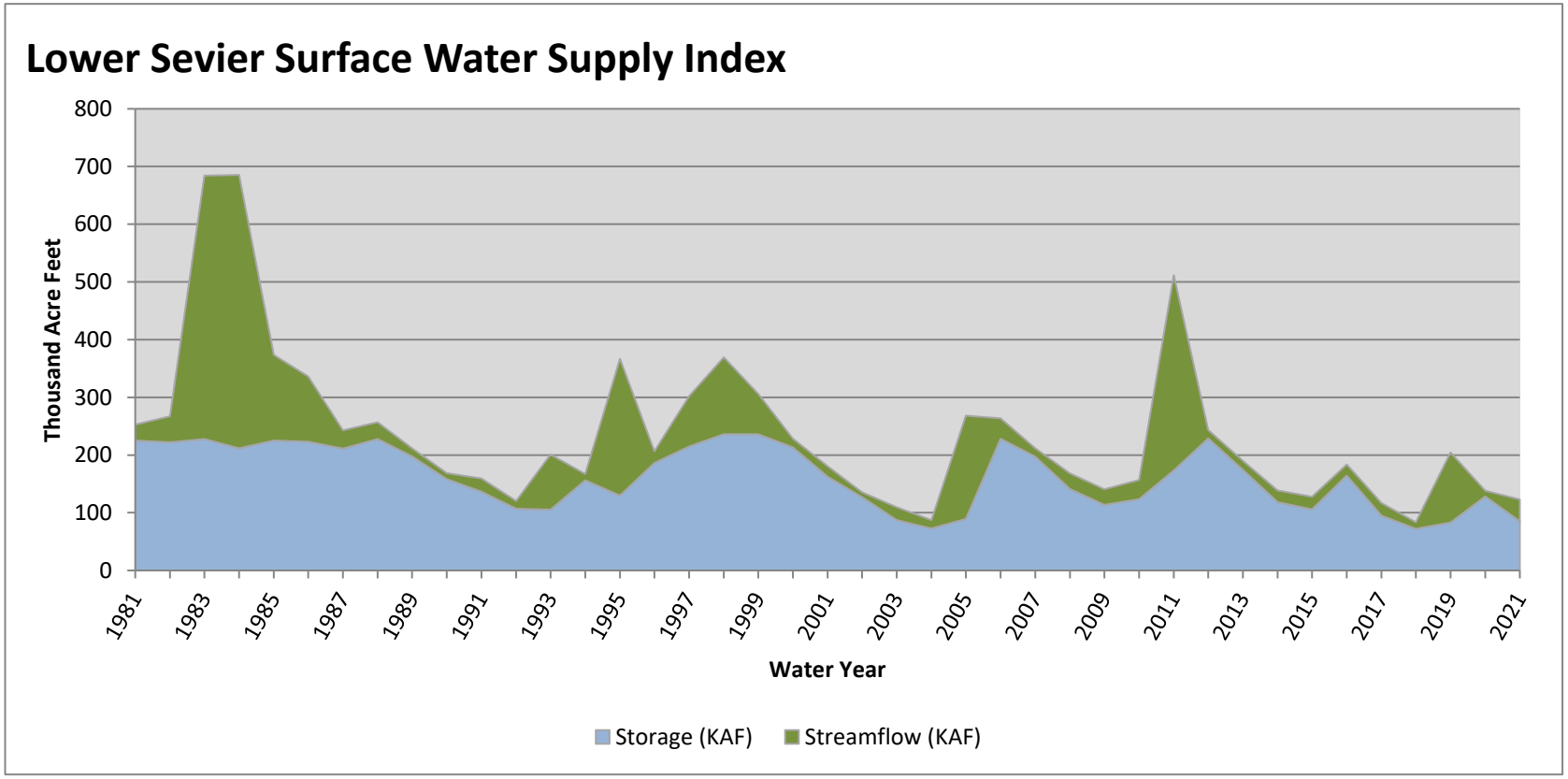
Watershed Snowpack Analysis May 1, 2021	# of Sites	% Median	Last Year % Median
Lower Sevier	1	35%	55%

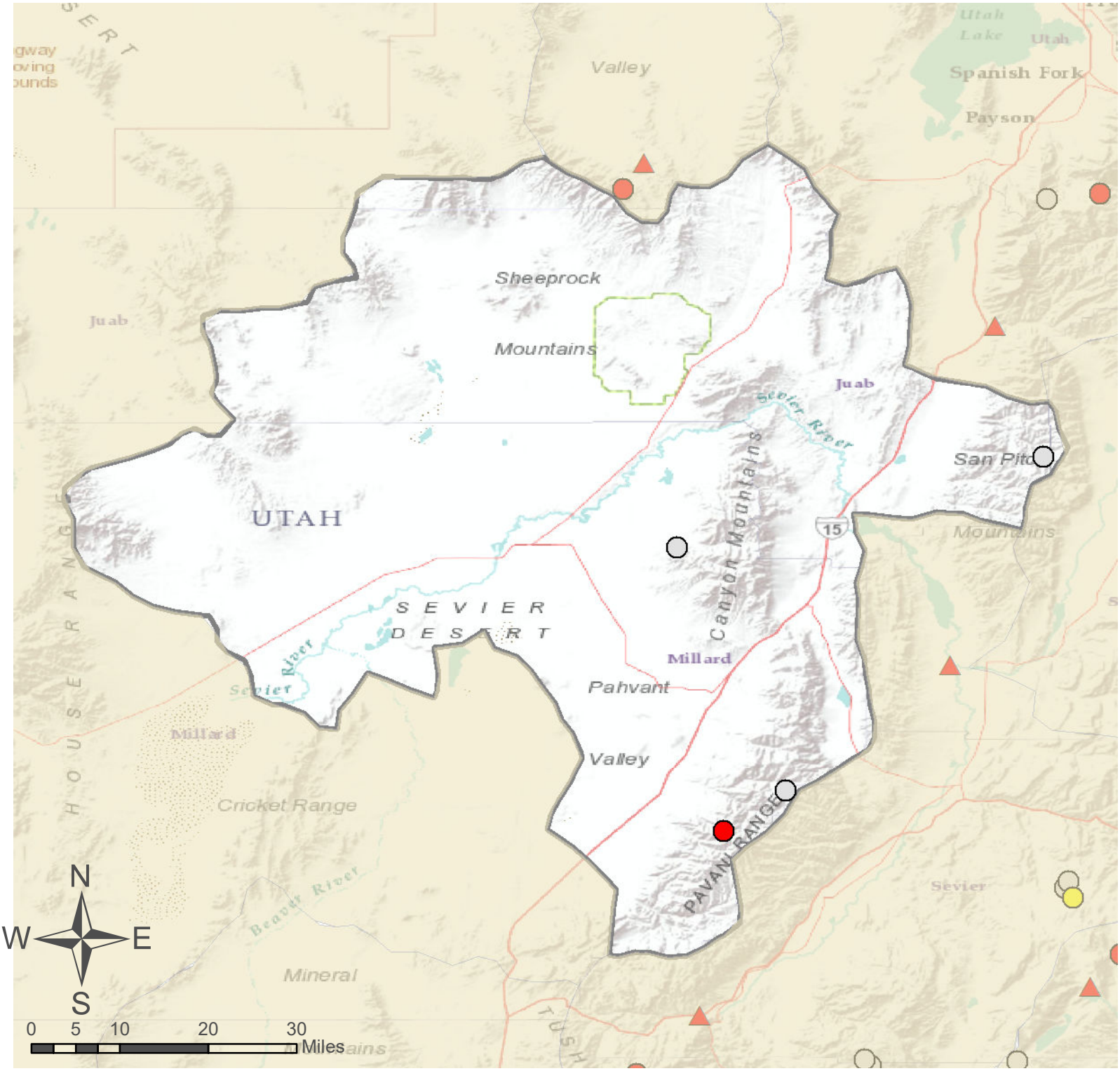
May 1, 2021

Surface Water Supply Index

Basin or Region	Apr EOM* Storage	MAY-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Lower Sevier	**85.20**	**38.00**	**123.20**	**14**	**-2.98**	**17, 92, 15, 02**

*EOM, end of month; #SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.





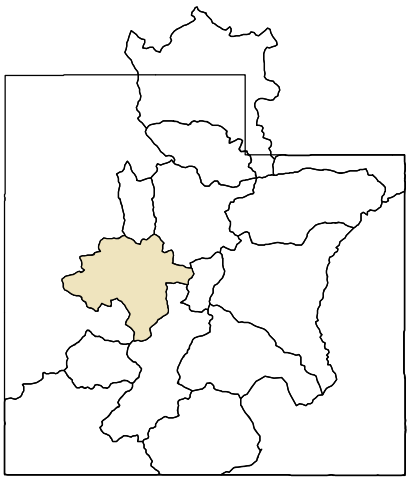
Lower Sevier Basin

SNOTEL Site

Forecast Point

% of Normal

- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- > 150%
- No Normal



As of May 1, 2021:

35% of Normal SWE

79% of Normal Precipitation

41% of Normal Precipitation Last Month

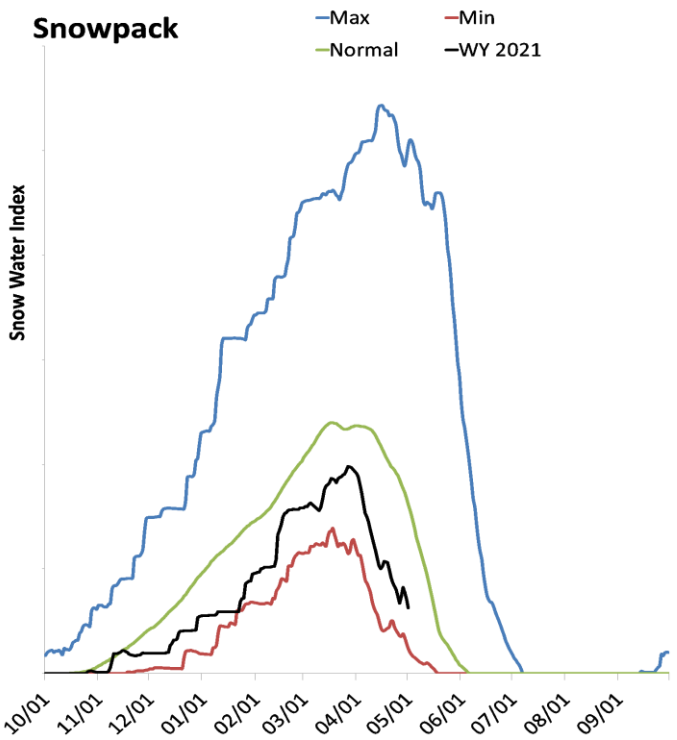
81% Saturation Soil Moisture

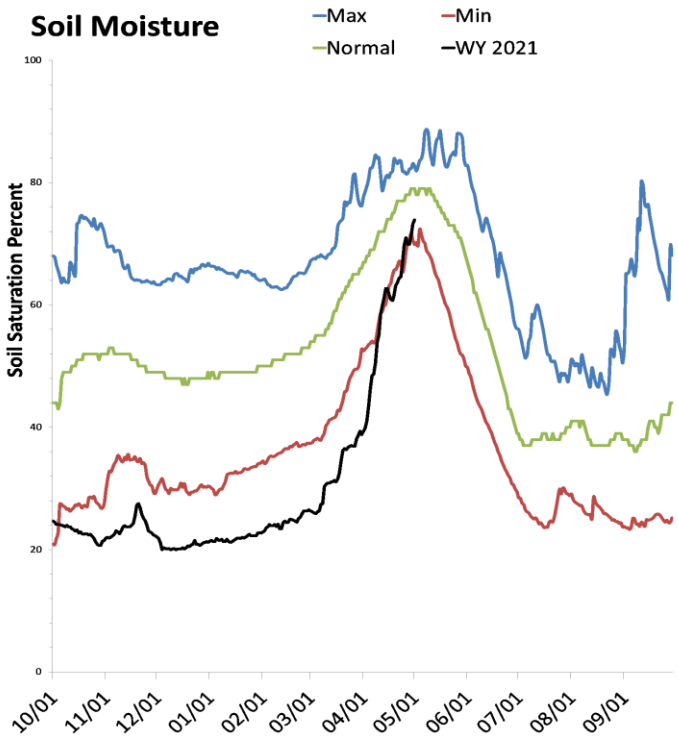
Lower Sevier Basin

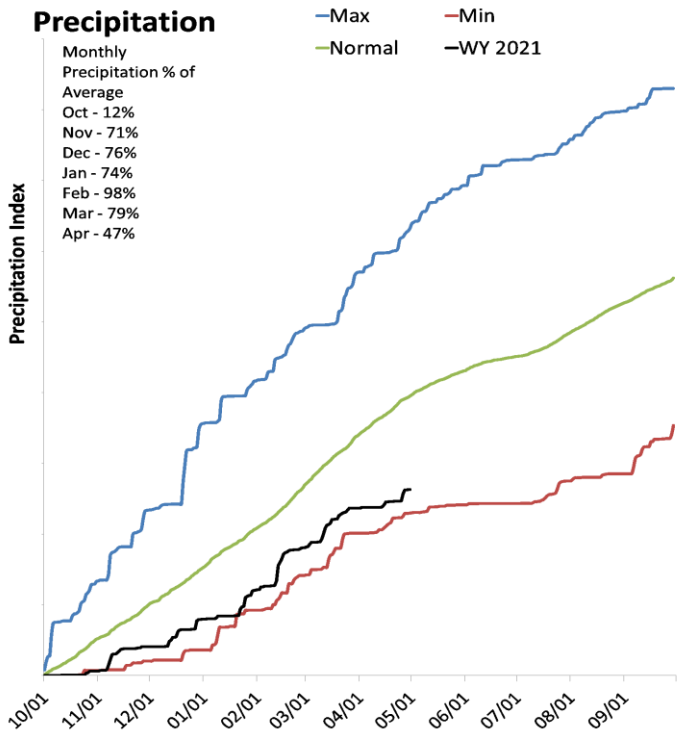
Upper Sevier Basin

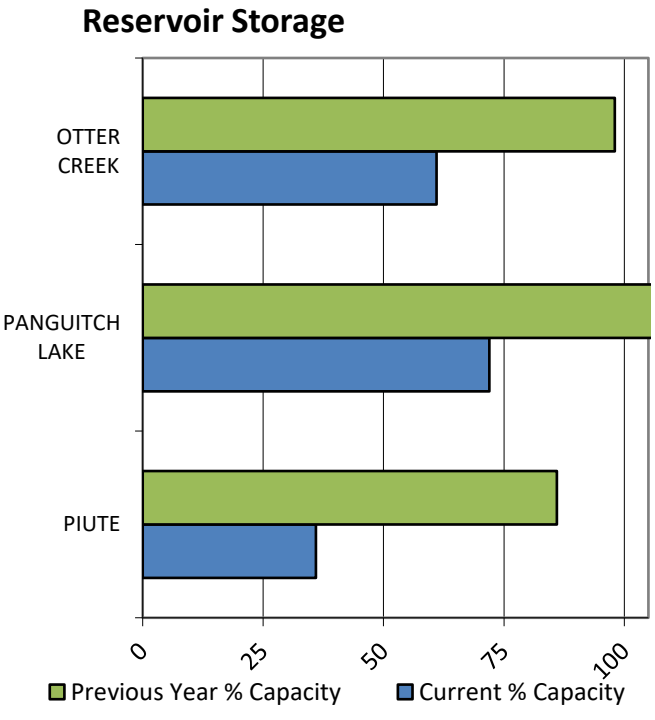
May 1, 2021

Snowpack in the Upper Sevier Basin is much below normal at 39% of normal, compared to 74% last year. Precipitation in April was much below average at 47%, which brings the seasonal accumulation (Oct-Apr) to 67% of average. Soil moisture is at 73% compared to 80% last year. Reservoir storage is at 50% of capacity, compared to 93% last year. Forecast streamflow volumes range from 24% to 59% of average. The surface water supply index is 2% for the Upper Sevier.









SNOTEL Data

Data Current as of: 5/6/2021 9:07:11 AM

Upper Sevier
Streamflow Forecasts - May 1, 2021

Upper Sevier	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
		Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast						
Mammoth Ck nr Hatch								
	APR-JUL	0	2.2	16	59%	22	30	27
	MAY-JUL	0	2	15	60%	20	30	25
Sevier R at Hatch								
	APR-JUL	1.44	7.1	13	27%	18.9	28	48
	MAY-JUL	1.26	4.5	9	21%	13.5	20	42
EF Sevier R nr Kingston								
	APR-JUL	1.05	9.7	17	49%	24	35	35
	MAY-JUL	0.6	7.1	15	50%	23	35	30
Sevier R nr Kingston								
	APR-JUL	0	0.66	8	24%	16.6	29	33
	MAY-JUL	0	0.52	7	27%	12.5	22	26
Sevier R bl Piute Dam								
	APR-JUL	1.98	4.3	23	35%	42	69	66
	MAY-JUL	1.65	4.2	17	31%	30	49	55
Clear Ck ab Diversions nr Sevier								
	APR-JUL	1.26	3.4	6.4	30%	9.4	13.8	21
	MAY-JUL	0.51	2.1	4.8	28%	7.6	11.7	17
Salina Ck nr Emery								
	APR-JUL	0	0.87	2.1	27%	3.7	6.1	7.9
	MAY-JUL	0	0.33	1.8	26%	3.3	5.4	7

1) 90% and 10% exceedance probabilities are actually 95% and 5%
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
3) Median value used in place of average

Reservoir Storage **End of April, 2021**	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Piute Reservoir	25.7	61.5	54.4	71.8
Otter Creek Reservoir	32.3	51.6	44.8	52.5
Panguitch Lake	16.0	23.6	15.9	22.3
Basin-wide Total	73.9	136.7	115.1	146.6
# of reservoirs	3	3	3	3

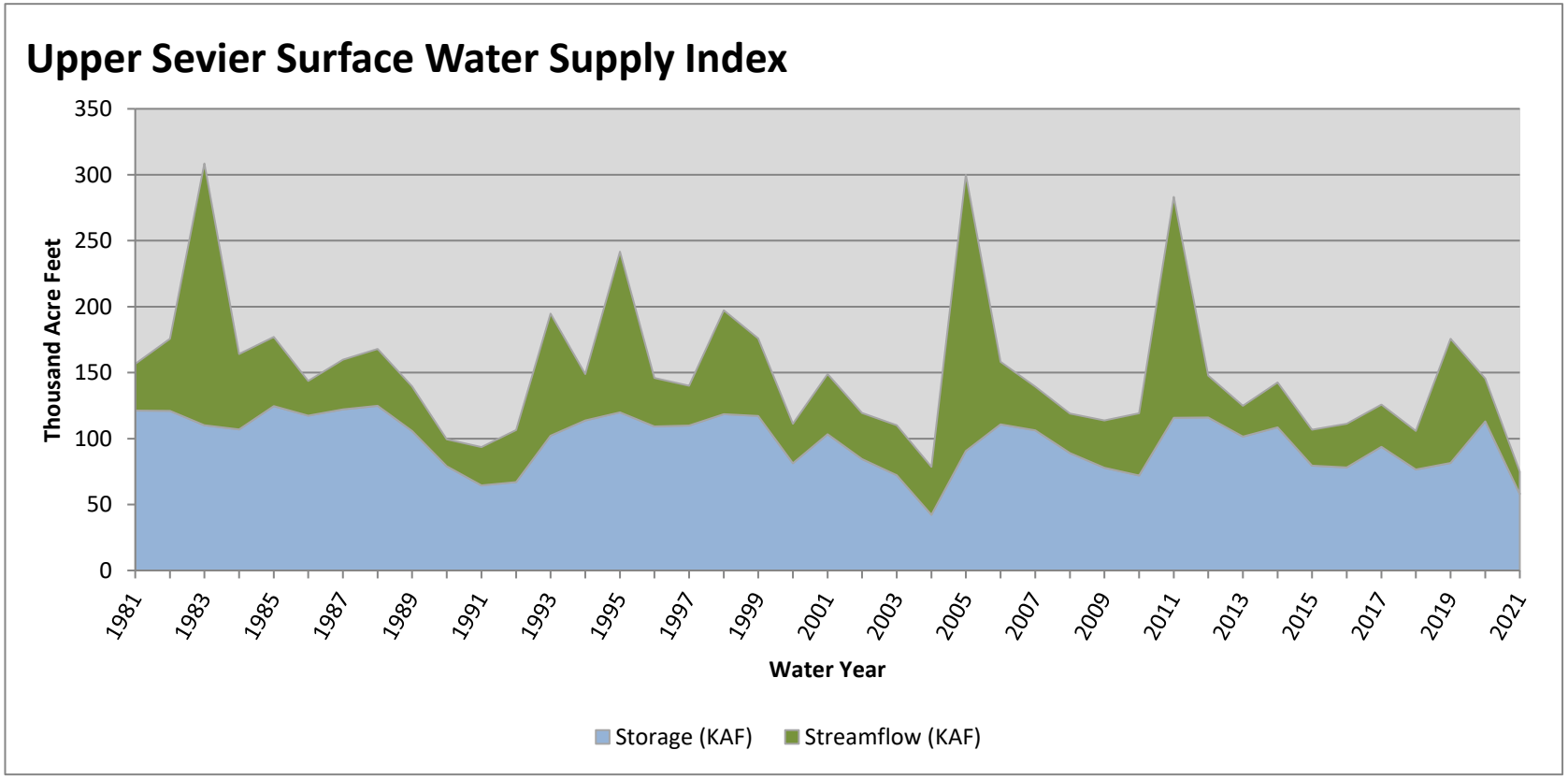
Watershed Snowpack Analysis **May 1, 2021**	# of Sites	% Median	Last Year % Median
Upper Sevier	12	39%	74%
Middle Sevier	8	48%	62%
East Fork Sevier River	5	0%	76%

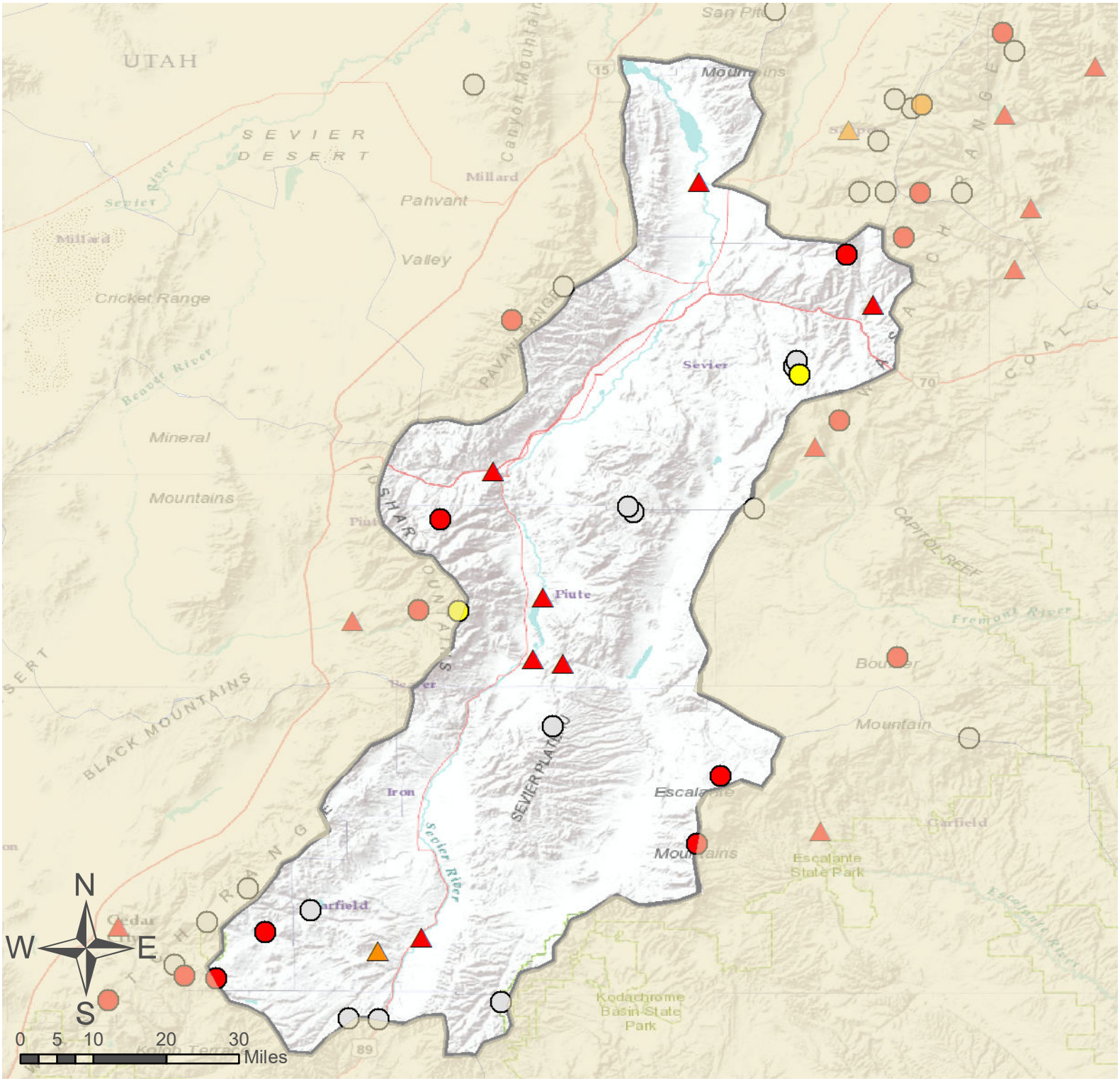
May 1, 2021

Surface Water Supply Index

Basin or Region	Apr EOM* Storage	MAY-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Upper Sevier	**57.92**	**17.00**	**74.92**	**2**	**-3.97**	**04, 91, 90, 18**

*EOM, end of month; #SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.





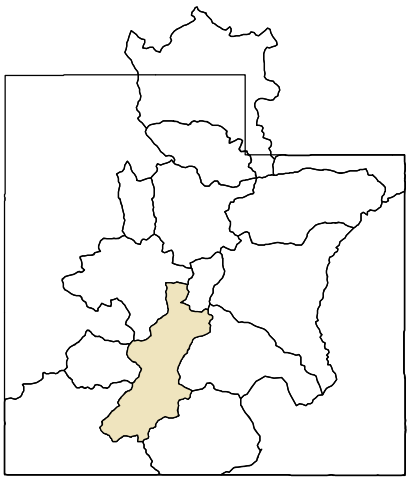
Upper Sevier Basin

SNOTEL Site

Forecast Point

% of Normal

- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- > 150%
- No Normal



As of May 1, 2021:

39% of Normal SWE

67% of Normal Precipitation

47% of Normal Precipitation Last Month

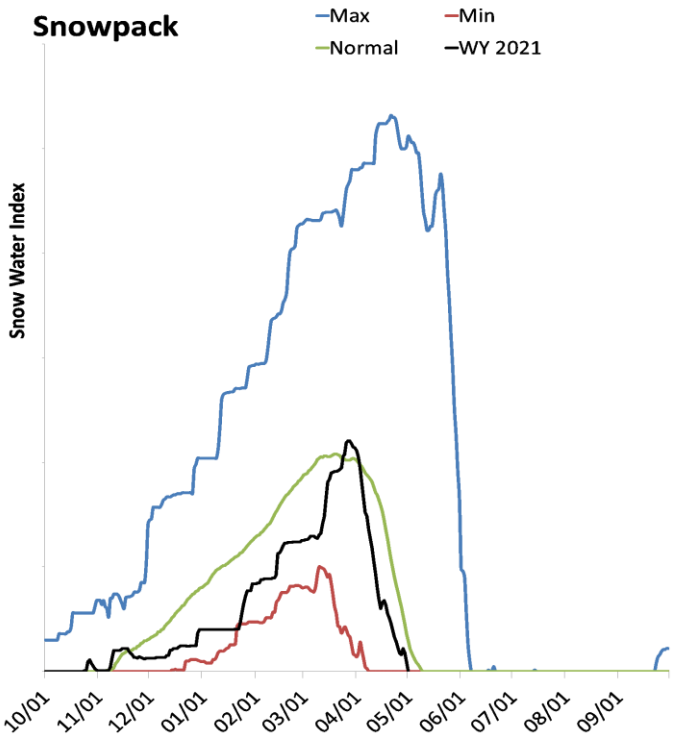
73% Saturation Soil Moisture

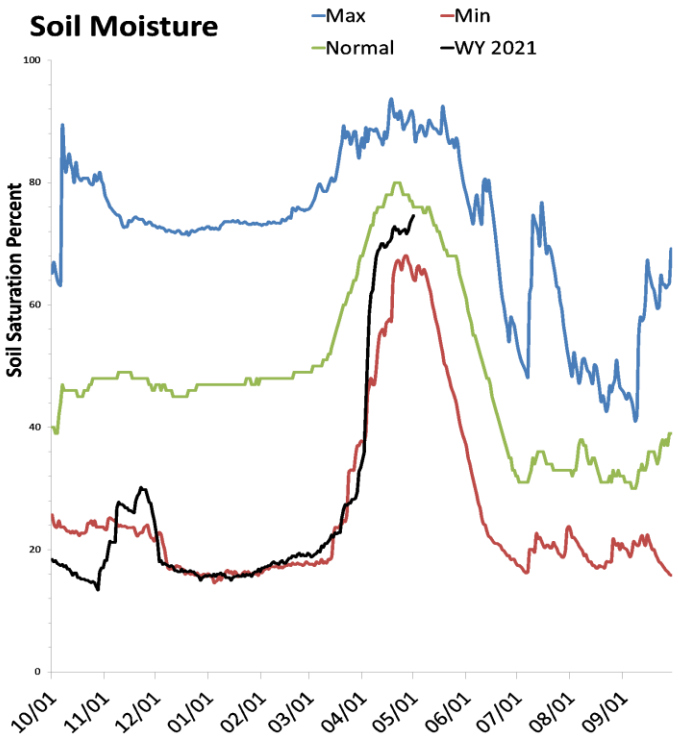
Upper Sevier Basin

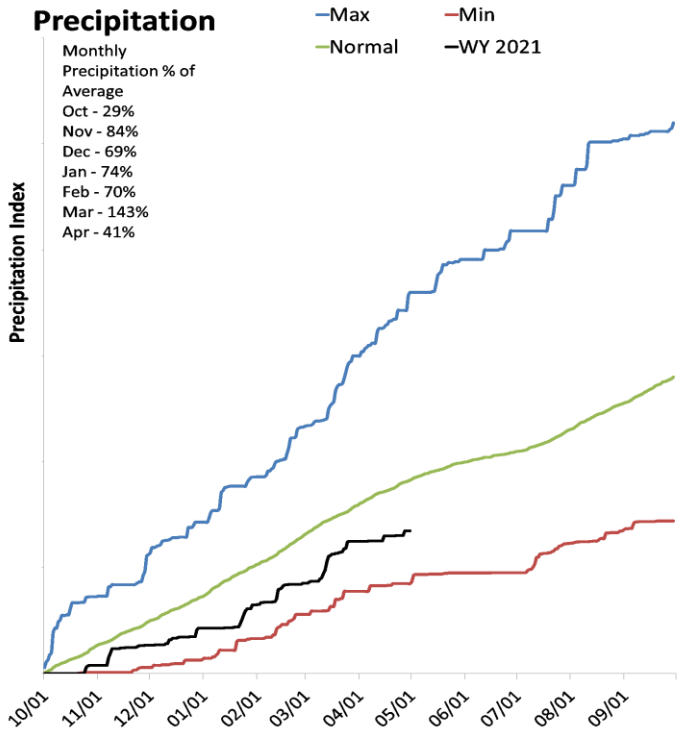
Southeastern Utah

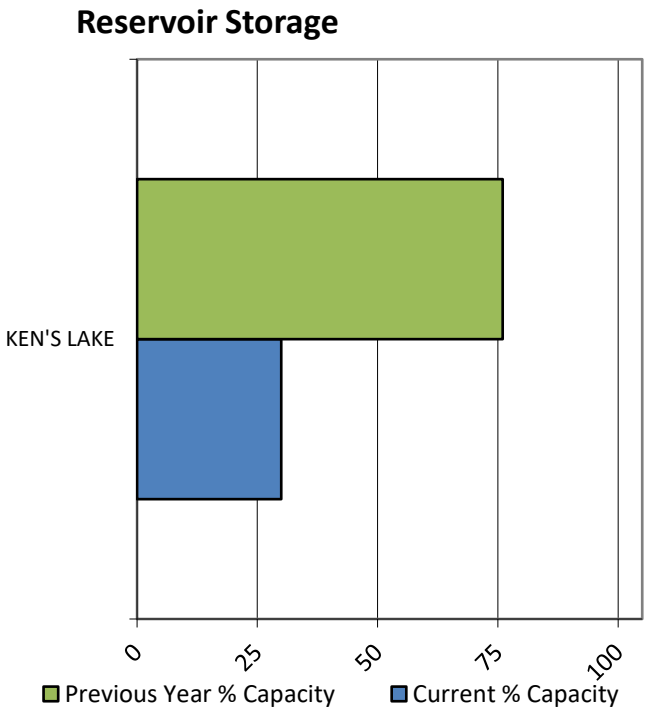
May 1, 2021

Snowpack in the Southeastern Utah is much below normal at 0% of normal, compared to 0% last year. Precipitation in April was much below average at 40%, which brings the seasonal accumulation (Oct-Apr) to 74% of average. Soil moisture is at 74% compared to 79% last year. Reservoir storage is at 30% of capacity, compared to 76% last year. Forecast streamflow volumes range from 30% to 53% of average. The surface water supply index is 20% for Moab.









SNOTEL Data

Data Current as of: 5/6/2021 9:07:09 AM

Southeastern Utah
Streamflow Forecasts - May 1, 2021

		Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast						
Southeastern Utah	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Mill Ck at Sheley Tunnel nr Moab								
	APR-JUL	1.38	1.89	2.3	53%	2.7	3.5	4.3
	MAY-JUL	1.09	1.6	2	54%	2.4	3.2	3.7
South Ck ab Resv nr Monticello								
Colorado R nr Cisco [2]								
	APR-JUL	1190	1440	1630	38%	1830	2150	4280
	MAY-JUL	1000	1250	1440	39%	1640	1960	3720
San Juan R near Bluff [2]								
	APR-JUL	230	285	330	30%	380	460	1100
	MAY-JUL	146	205	250	29%	300	380	855

1) 90% and 10% exceedance probabilities are actually 95% and 5%
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
3) Median value used in place of average

Reservoir Storage End of April, 2021	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Ken's Lake	0.7	1.7	1.5	2.3
Basin-wide Total	0.7	1.7	1.5	2.3
# of reservoirs	1	1	1	1

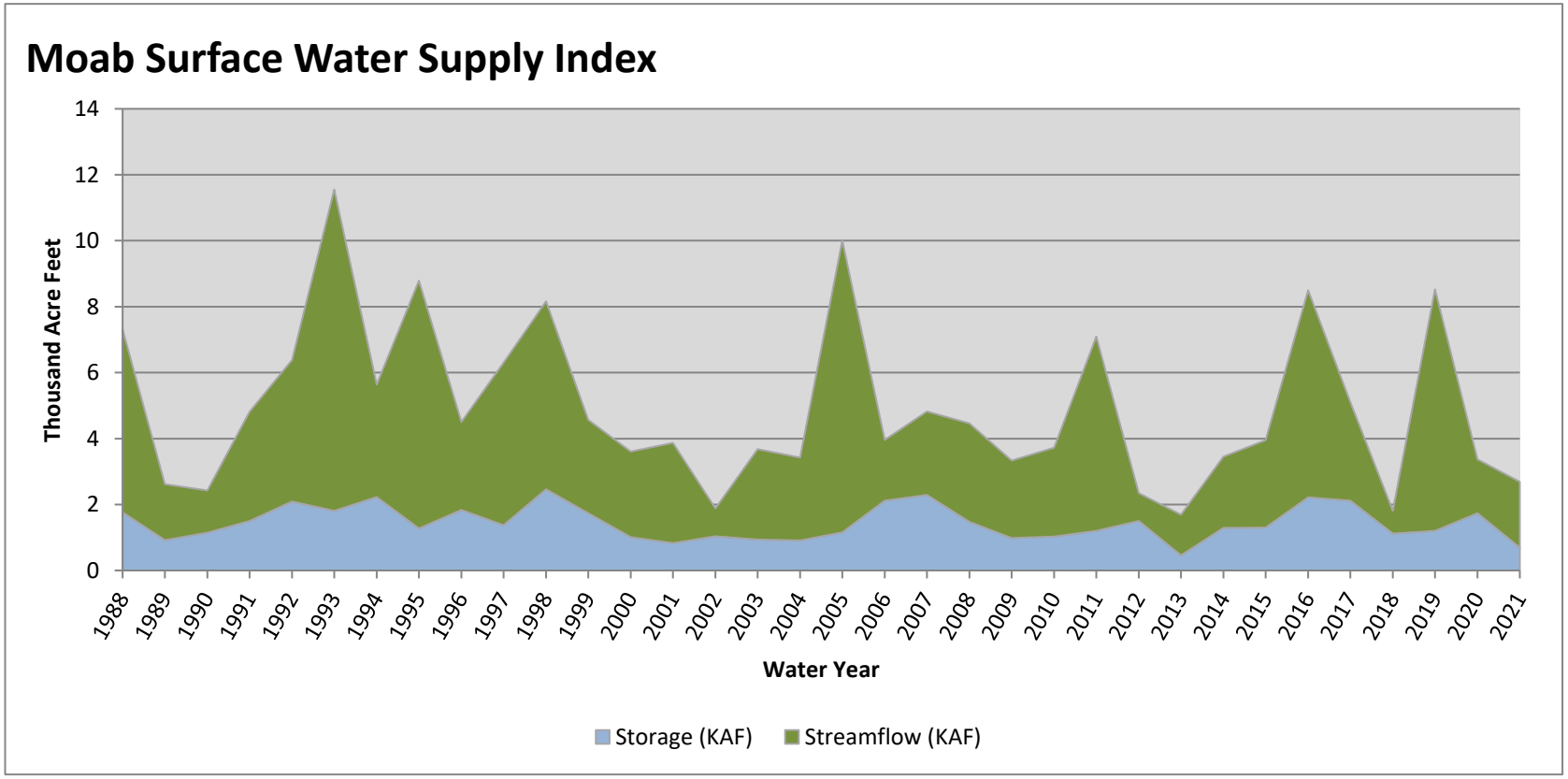
Watershed Snowpack Analysis May 1, 2021	# of Sites	% Median	Last Year % Median
Lasal Mountains	2	0%	0%
Lower San Juan	2	31%	83%
Lower Green	2	0%	80%
Henry Mountains	0		

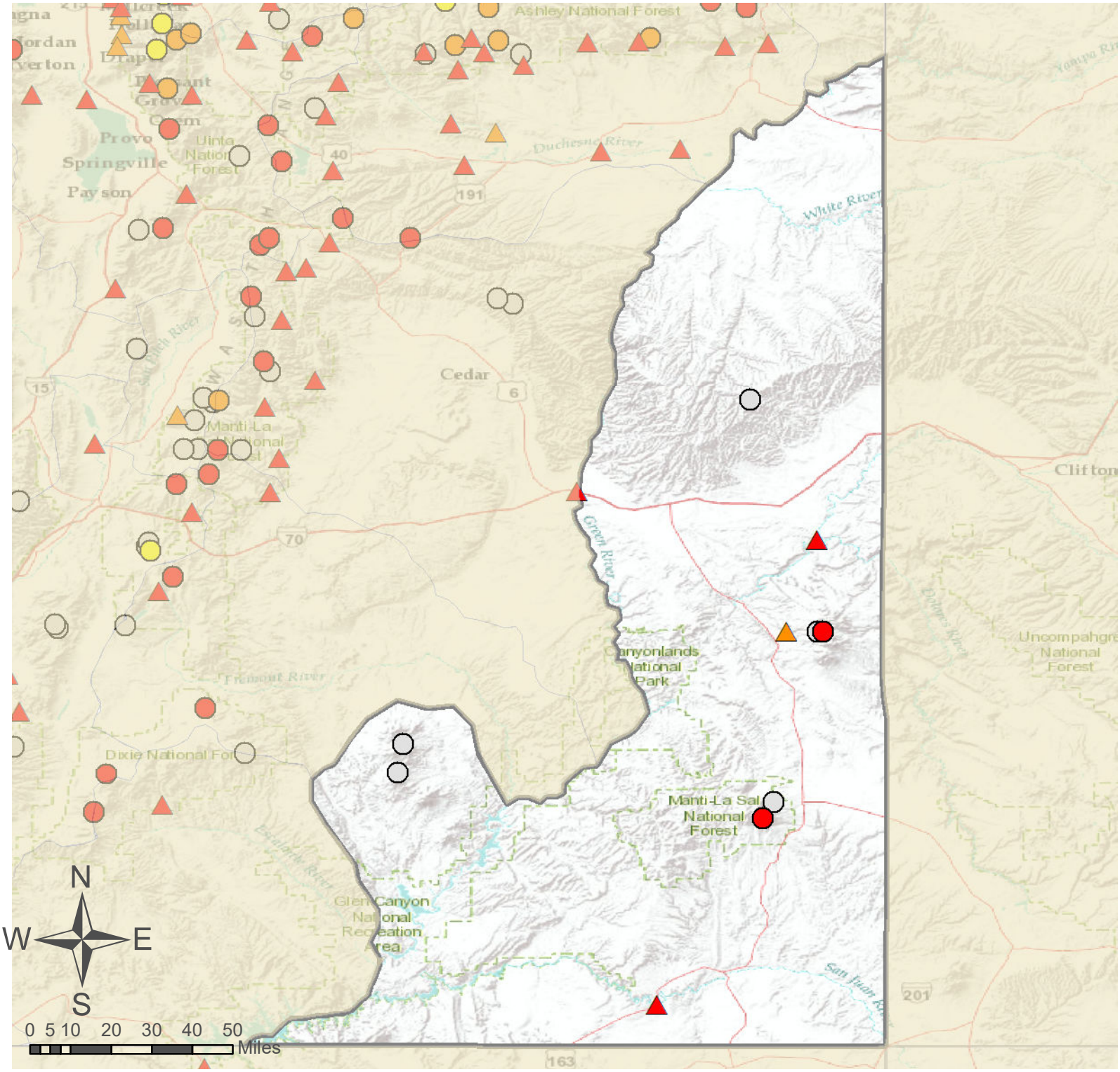
May 1, 2021

Surface Water Supply Index

Basin or Region	Apr EOM* Storage	MAY-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Moab	**0.69**	**2.00**	**2.69**	**20**	**-2.5**	**90, 89, 09, 20**

*EOM, end of month; #SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.





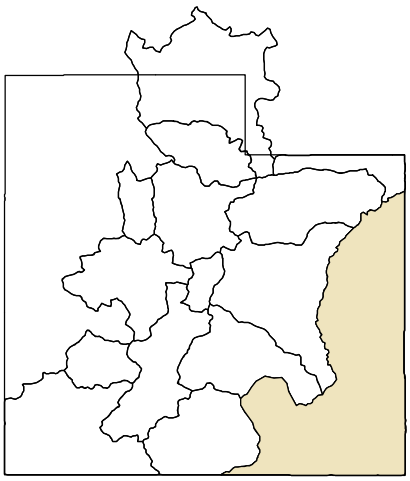
Southeastern Utah

SNOTEL Site

Forecast Point

% of Normal

- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- > 150%
- No Normal



As of May 1, 2021:

0% of Normal SWE

74% of Normal Precipitation

40% of Normal Precipitation Last Month

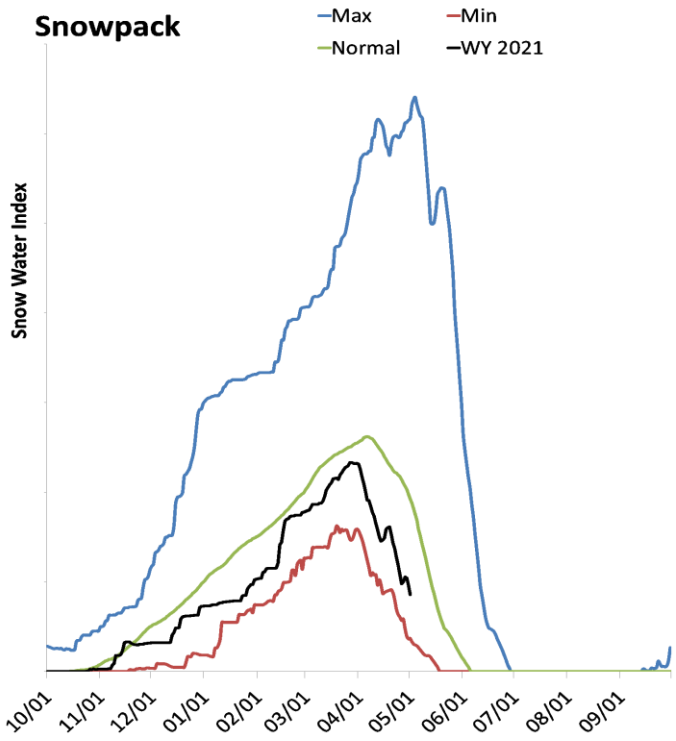
74% Saturation Soil Moisture

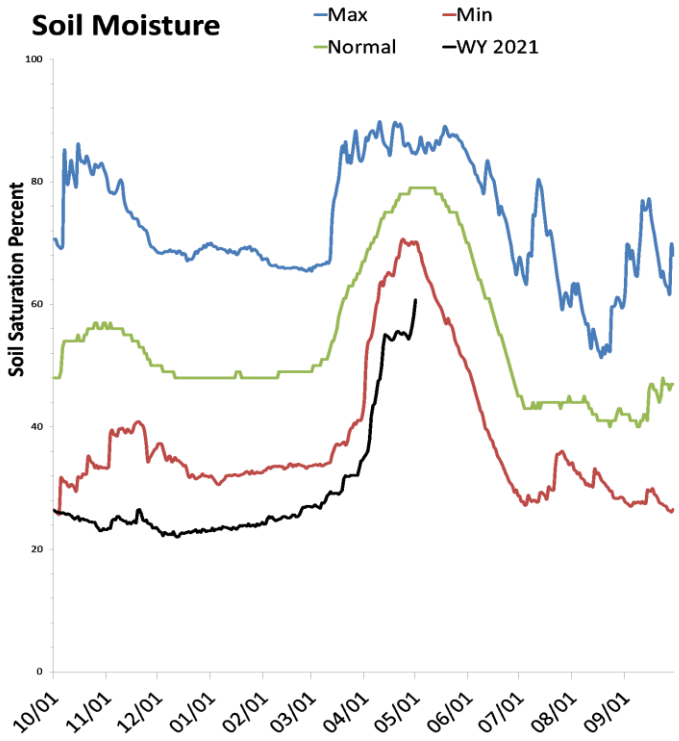
Southeastern Utah

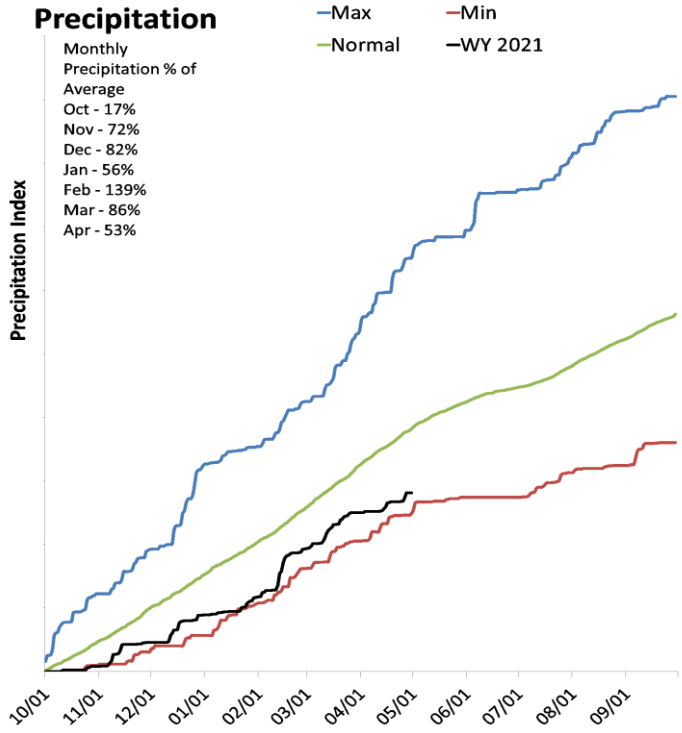
Dirty Devil Basin

May 1, 2021

Snowpack in the Dirty Devil Basin is much below normal at 44% of normal, compared to 69% last year. Precipitation in April was much below average at 54%, which brings the seasonal accumulation (Oct-Apr) to 74% of average. Soil moisture is at 60% compared to 73% last year. Forecast streamflow volumes range from 29% to 40% of average.







SNOTEL Data

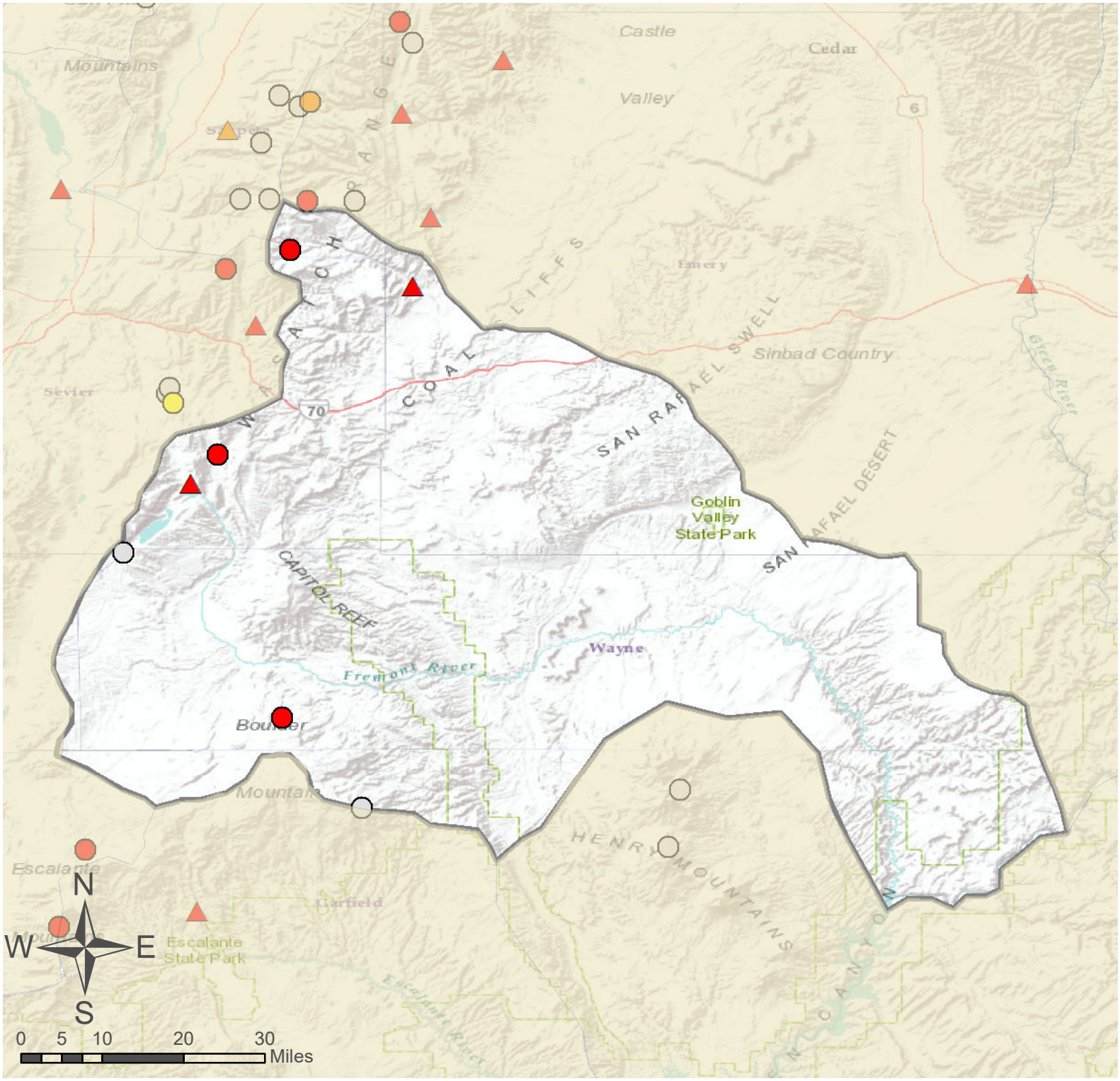
Data Current as of: 5/6/2021 9:07:07 AM

Dirty Devil
Streamflow Forecasts - May 1, 2021

		Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast						
Dirty Devil	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Muddy Ck nr Emery								
	APR-JUL	2.8	4.4	5.8	29%	7.4	10.1	19.9
	MAY-JUL	2.1	3.7	5.1	28%	6.7	9.4	18.1
Seven Mile Ck nr Fish Lake								
	APR-JUL	1.98	2.5	2.9	40%	3.4	4.2	7.3
	MAY-JUL	1.03	1.57	2	32%	2.5	3.3	6.3

1) 90% and 10% exceedance probabilities are actually 95% and 5%
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
3) Median value used in place of average

Watershed Snowpack Analysis May 1, 2021	# of Sites	% Median	Last Year % Median
Muddy Creek	3	29%	69%
Fremont River	4	58%	65%
Henry Mountains	0		



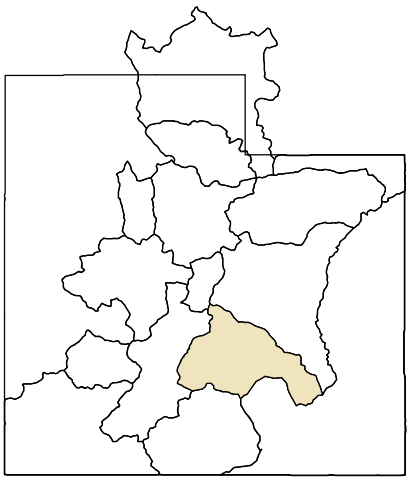
Dirty Devil Basin

SNOTEL Site

Forecast Point

% of Normal

- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- > 150%
- No Normal



As of May 1, 2021:

44% of Normal SWE

74% of Normal Precipitation

54% of Normal Precipitation Last Month

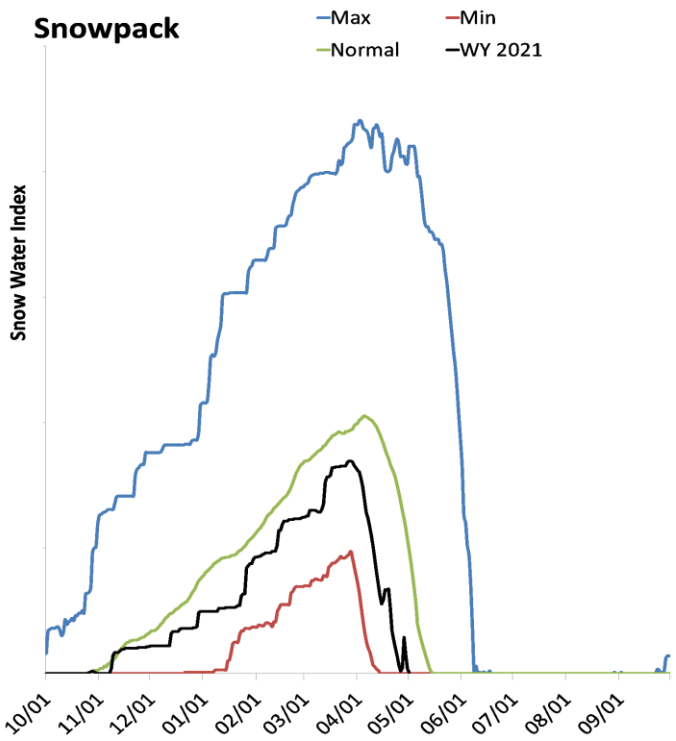
60% Saturation Soil Moisture

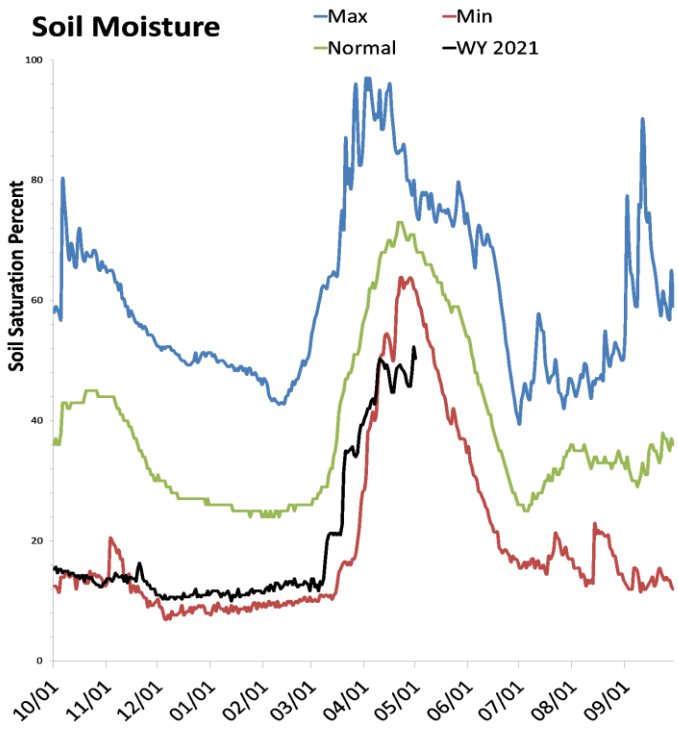
Dirty Devil Basin

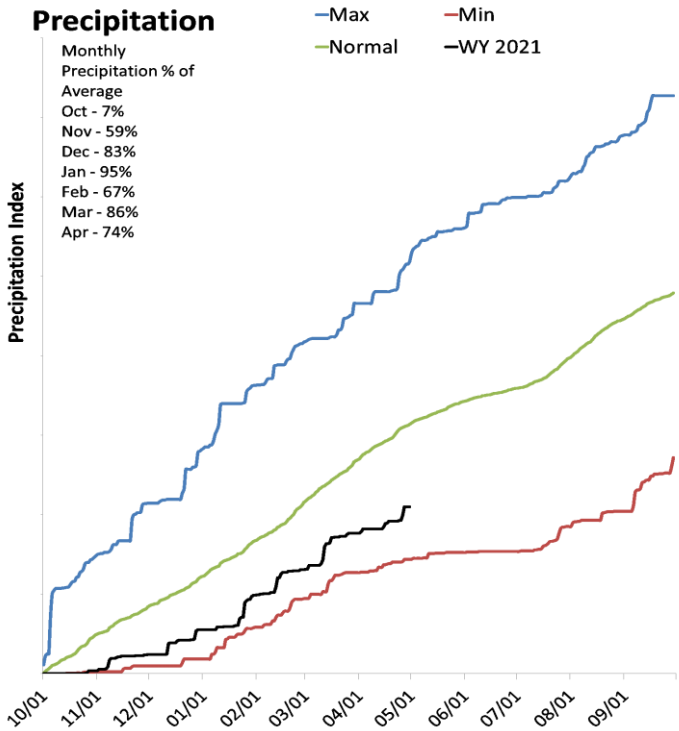
Escalante River Basin

May 1, 2021

Snowpack in the Escalante River Basin is much below normal at 1% of normal, compared to 83% last year. Precipitation in April was below average at 75%, which brings the seasonal accumulation (Oct-Apr) to 67% of average. Soil moisture is at 51% compared to 71% last year. The forecast streamflow volume for Pine Creek is 30% of average.







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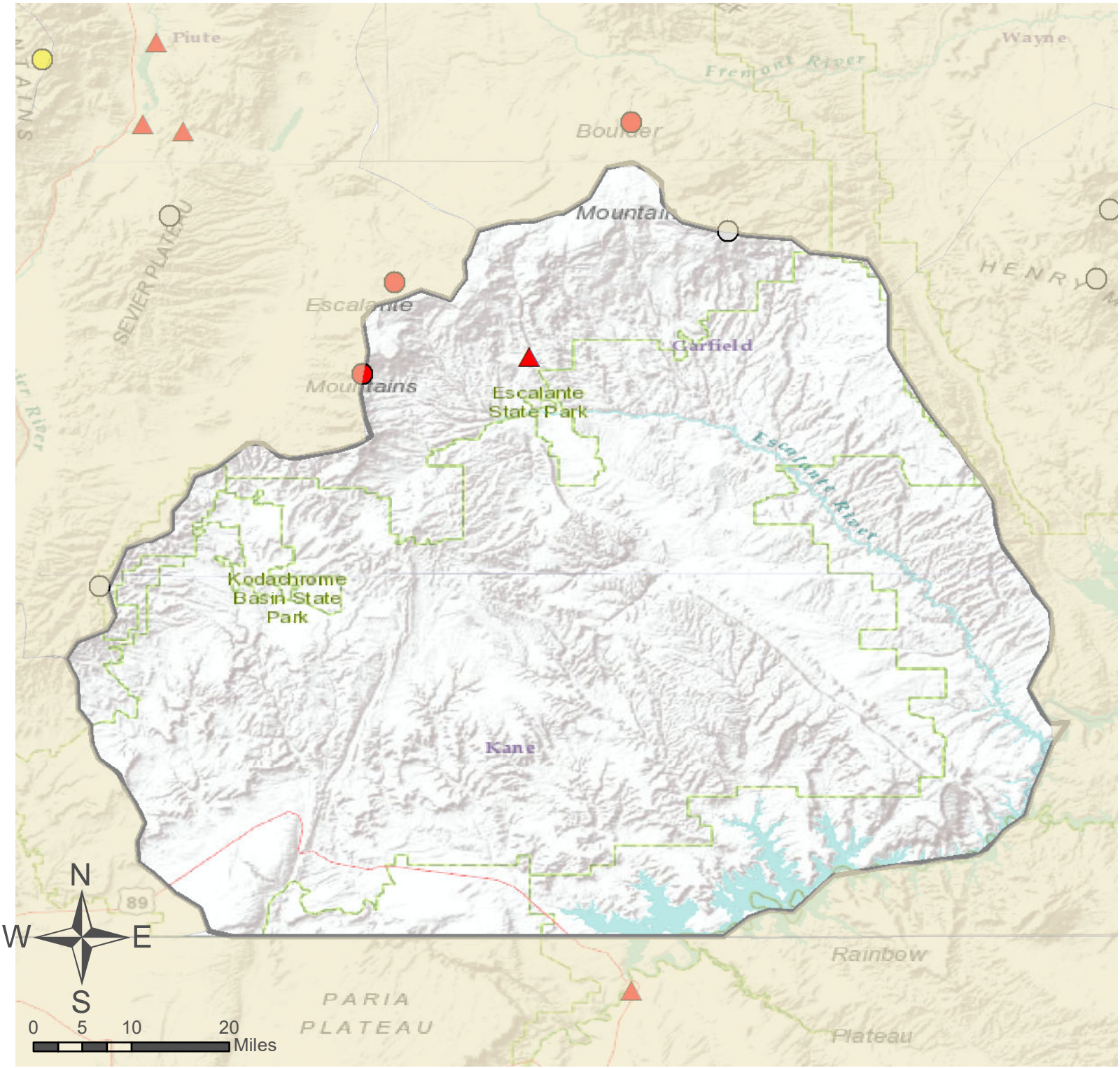
Escalante River
Streamflow Forecasts - May 1, 2021

		Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast						
Escalante River	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Pine Ck nr Escalante								
	APR-JUL	0.28	0.51	0.73	30%	1	1.49	2.4
	MAY-JUL	0.15	0.38	0.6	32%	0.87	1.36	1.86

1) 90% and 10% exceedance probabilities are actually 95% and 5%
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
3) Median value used in place of average

Watershed Snowpack Analysis May 1, 2021	# of Sites	% Median	Last Year % Median
Escalante River	3	1%	83%
Paria River	3	0%	57%



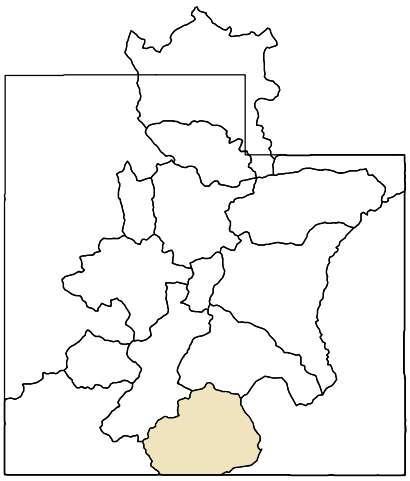
Escalante River Basin

SNOTEL Site

Forecast Point

% of Normal

- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- > 150%
- No Normal



As of May 1, 2021:

1% of Normal SWE

67% of Normal Precipitation

75% of Normal Precipitation Last Month

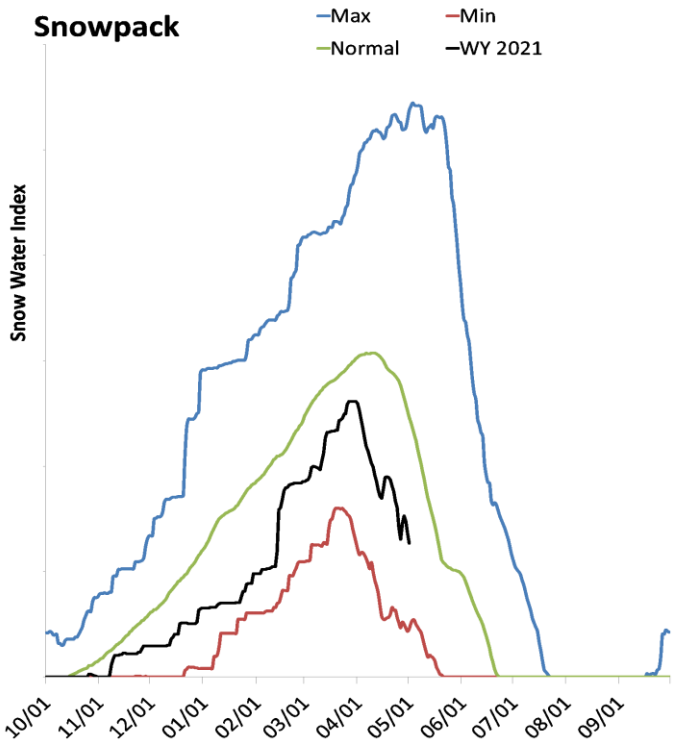
51% Saturation Soil Moisture

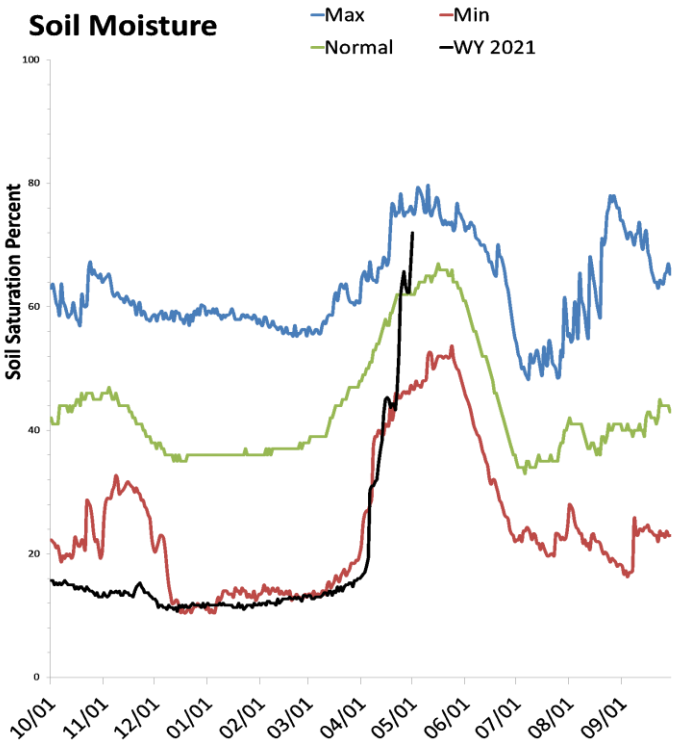
Escalante River Basin

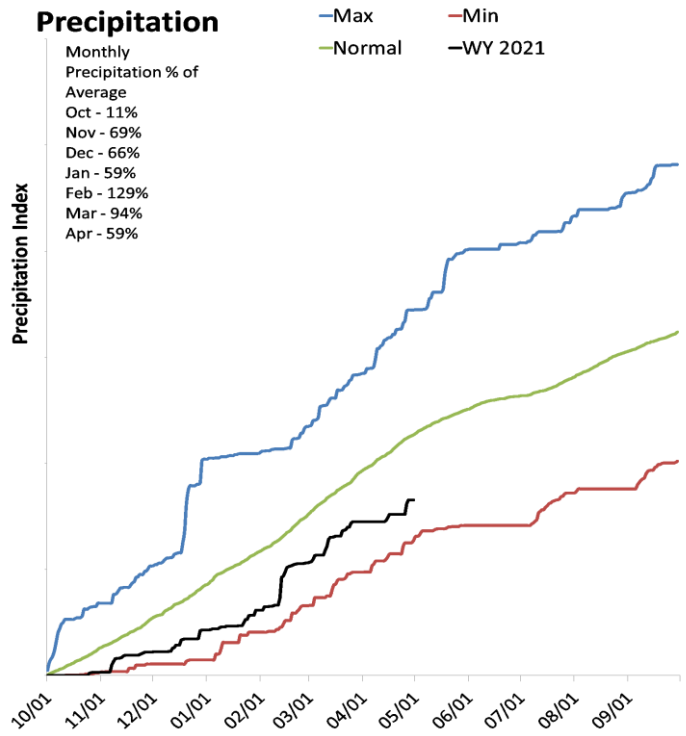
Beaver River Basin

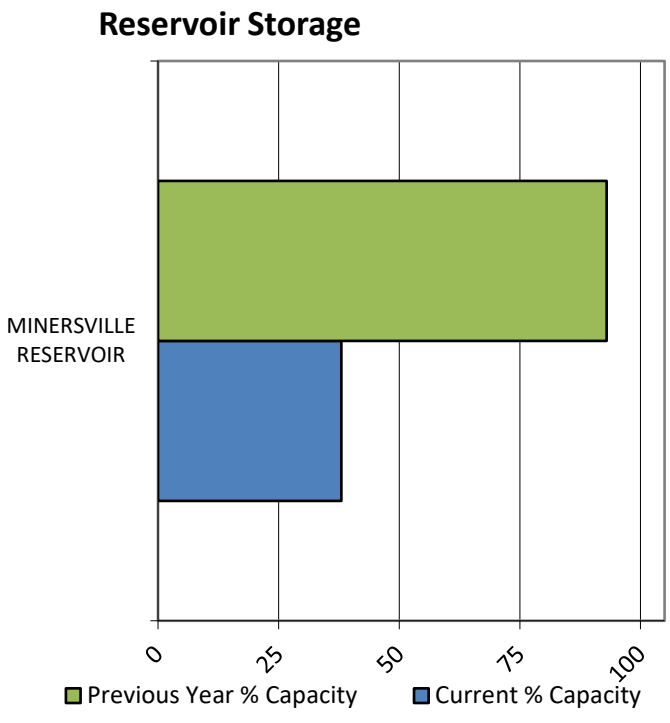
May 1, 2021

Snowpack in the Beaver River Basin is much below normal at 51% of normal, compared to 72% last year. Precipitation in April was much below average at 59%, which brings the seasonal accumulation (Oct-Apr) to 73% of average. Soil moisture is at 68% compared to 63% last year. Reservoir storage is at 38% of capacity, compared to 93% last year. The forecast streamflow volume for the Beaver River is 38% of average. The surface water supply index is 5% for the Beaver River.









SNOTEL Data

Data Current as of: 5/6/2021 9:07:18 AM

Beaver River
Streamflow Forecasts - May 1, 2021

		Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast						
Beaver River	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Beaver R nr Beaver								
	APR-JUL	0.78	5.1	9.9	38%	14.7	22	26
	MAY-JUL	0.46	2.4	7.8	34%	13.1	21	23

1) 90% and 10% exceedance probabilities are actually 95% and 5%
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
3) Median value used in place of average

Reservoir Storage End of April, 2021	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Minersville Reservoir	8.8	21.8	16.5	23.3
Basin-wide Total	8.8	21.8	16.5	23.3
# of reservoirs	1	1	1	1

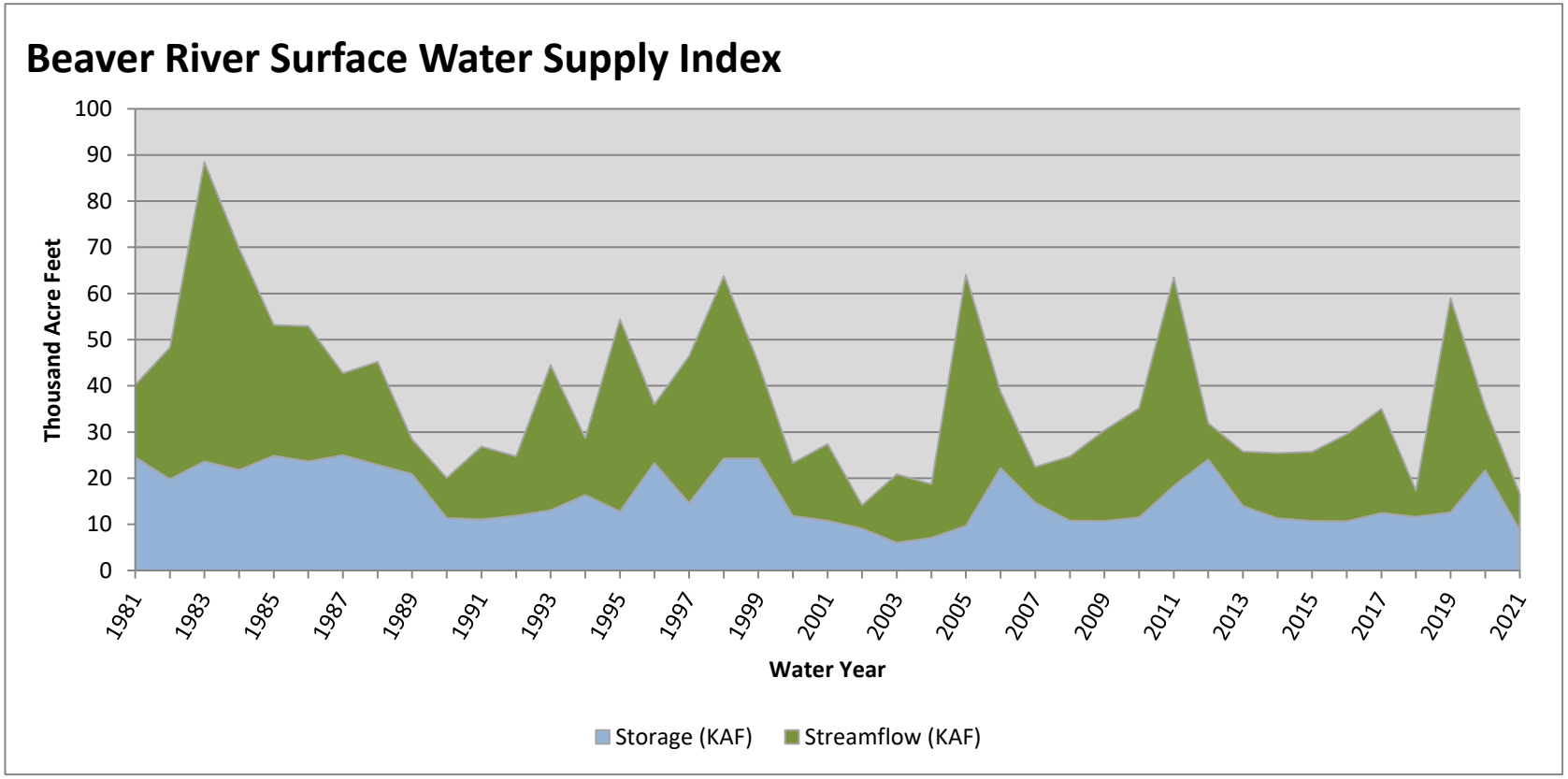
Watershed Snowpack Analysis May 1, 2021	# of Sites	% Median	Last Year % Median
Beaver River	3	51%	72%

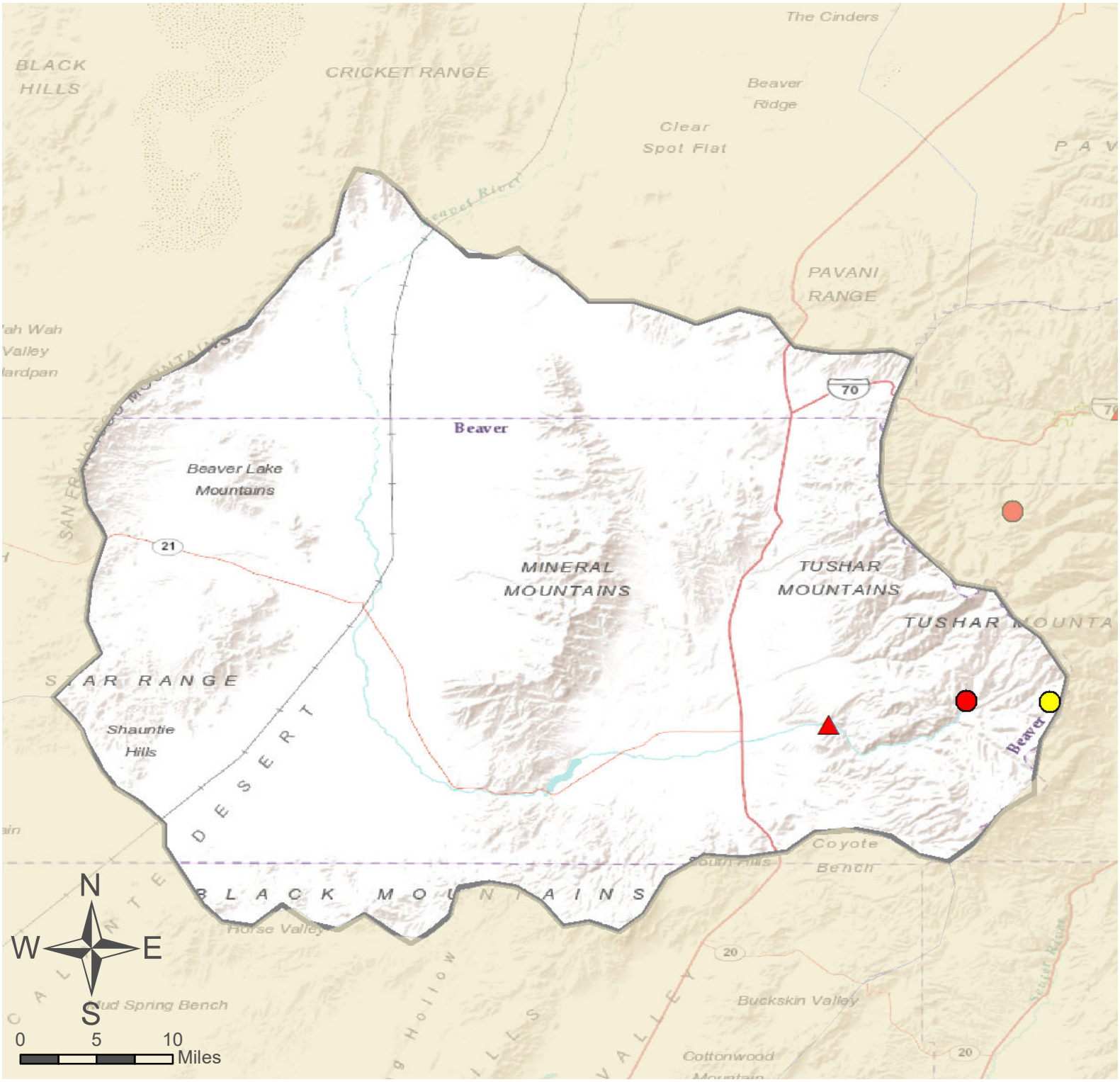
May 1, 2021

Surface Water Supply Index

Basin or Region	Apr EOM* Storage	MAY-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Beaver River	**8.80**	**7.80**	**16.60**	**5**	**-3.77**	**02, 18, 04, 90**

*EOM, end of month; #SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.





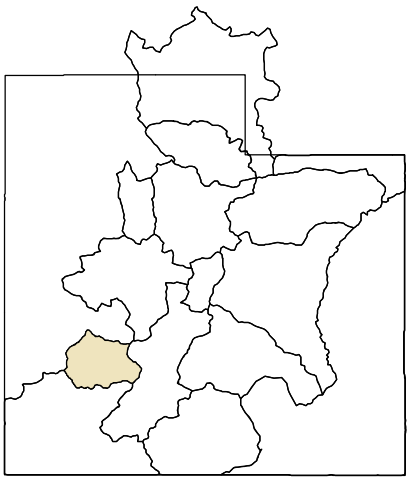
Beaver River Basin

SNOTEL Site

Forecast Point

% of Normal

- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- > 150%
- No Normal



As of May 1, 2021:

51% of Normal SWE

73% of Normal Precipitation

59% of Normal Precipitation Last Month

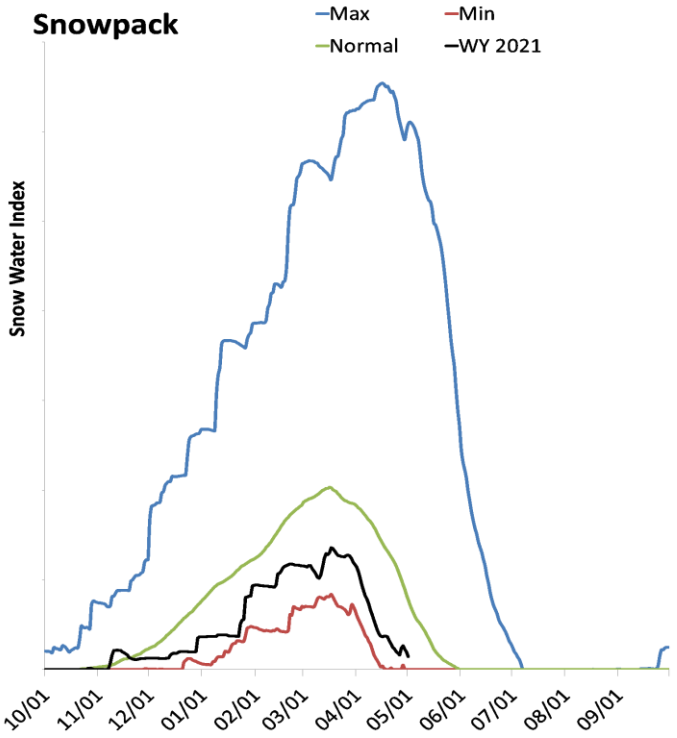
68% Saturation Soil Moisture

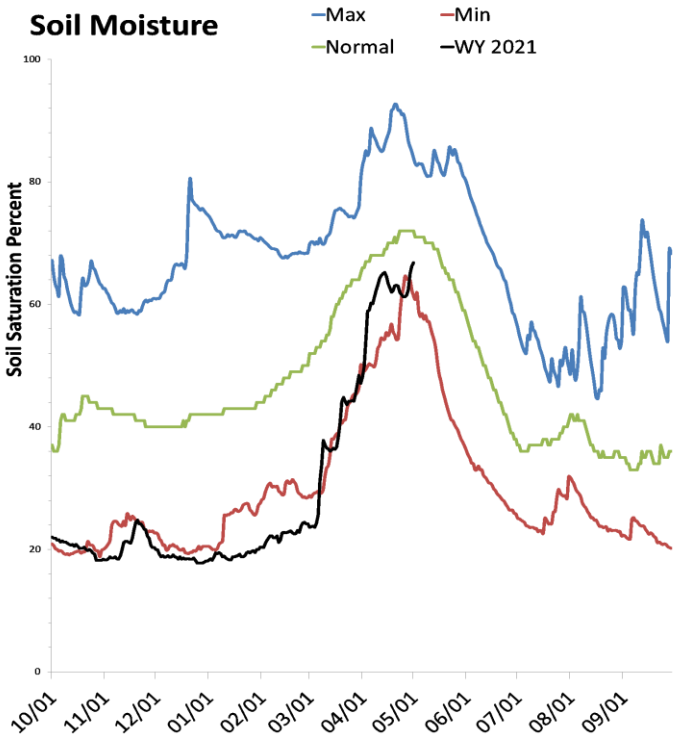
Beaver River Basin

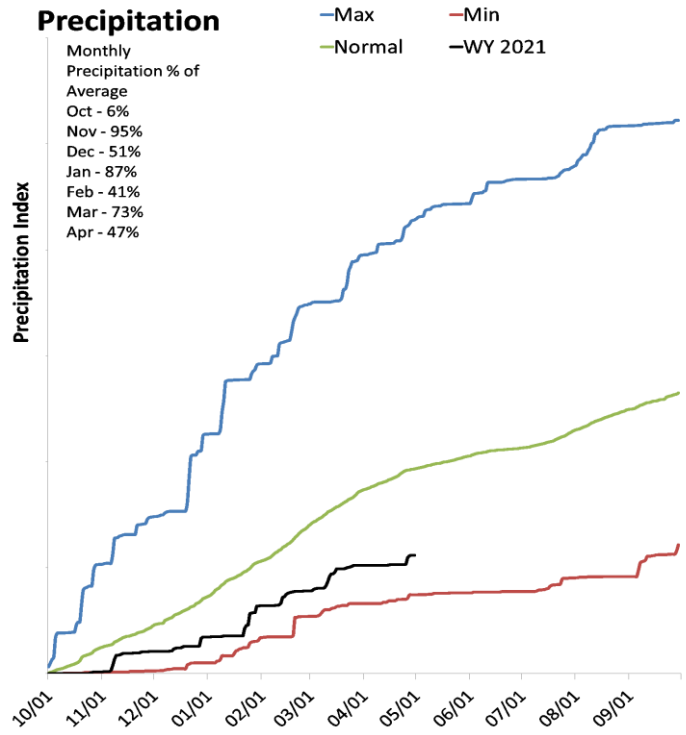
Southwestern Utah

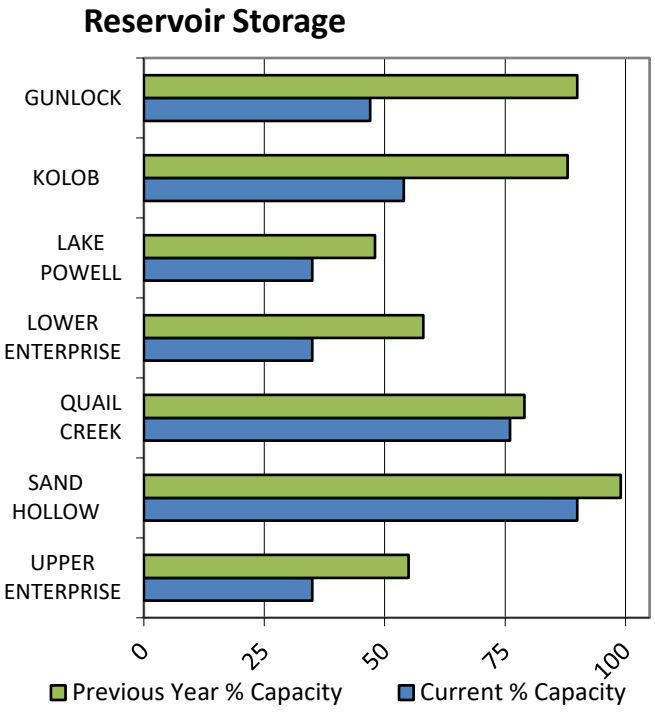
May 1, 2021

Snowpack in the Southwestern Utah is much below normal at 18% of normal, compared to 120% last year. Precipitation in April was much below average at 47%, which brings the seasonal accumulation (Oct-Apr) to 58% of average. Soil moisture is at 67% compared to 67% last year. Reservoir storage is at 35% of capacity, compared to 48% last year. Forecast streamflow volumes range from 13% to 29% of average. The surface water supply index is 7% for the Virgin River.









SNOTEL Data

Data Current as of: 5/6/2021 9:07:23 AM

Southwestern Utah
Streamflow Forecasts - May 1, 2021

		Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast						
Southwestern Utah	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Lake Powell Inflow [2]								
	APR-JUL	1270	1680	1990	28%	2330	2900	7160
	MAY-JUL	985	1390	1700	28%	2040	2610	6100
Virgin R nr Hurricane								
	APR-JUL	0	1.29	12	19%	23	38	63
	MAY-JUL	1.23	3.7	9	22%	16.9	28	41
Virgin R at Virgin								
	APR-JUL	10.3	13.9	16.6	29%	19.6	24	58
	MAY-JUL	6.2	9	11.2	29%	13.6	17.7	38
Santa Clara R nr Pine Valley								
	APR-JUL	0.22	0.44	0.63	13%	0.86	1.25	5
	MAY-JUL	0.08	0.24	0.38	10%	0.56	0.89	4
Coal Ck nr Cedar City								
	APR-JUL	0.57	2.4	3.7	19%	5	6.8	19.4
	MAY-JUL	0	0.57	2.3	15%	4	6.5	15.8

1) 90% and 10% exceedance probabilities are actually 95% and 5%
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
3) Median value used in place of average

Reservoir Storage End of April, 2021	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Lake Powell	8504.5	11685.3	17123.0	24322.0
Lower Enterprise	0.9	1.5	1.4	2.6
Upper Enterprise	3.5	5.5	5.0	10.0
Kolob Reservoir	3.0	4.9		5.6
Gunlock	4.9	9.3	6.8	10.4
Sand Hollow Reservoir	44.9	49.5		50.0
Quail Creek	30.2	31.6	31.6	40.0
Basin-wide Total	8544.0	11733.2	17167.8	24385.0
# of reservoirs	5	5	5	5

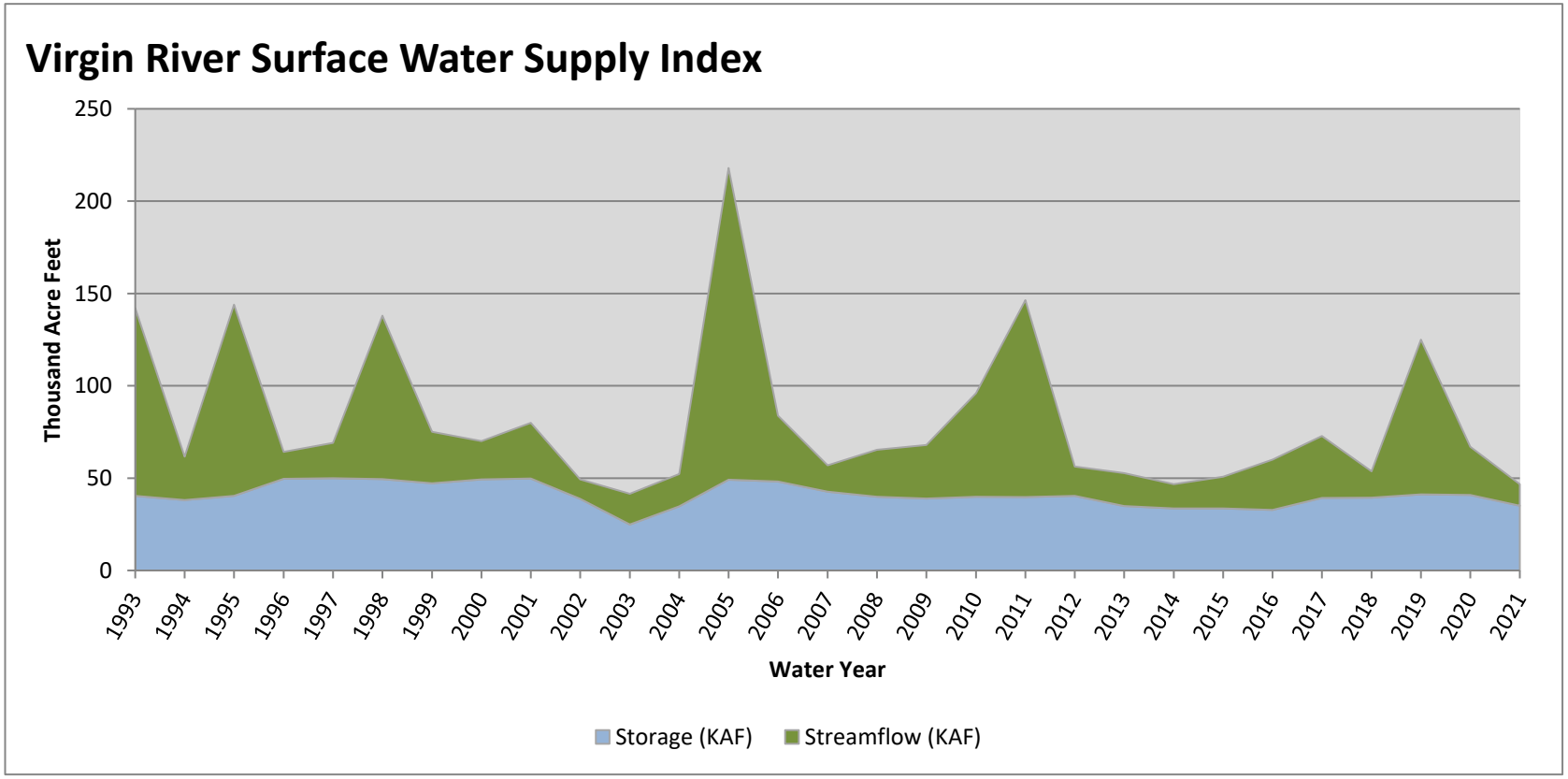
Watershed Snowpack Analysis May 1, 2021	# of Sites	% Median	Last Year % Median
Upper Virgin	8	21%	115%
Lower Virgin	2		
Coal Parowan Creeks	4	19%	114%

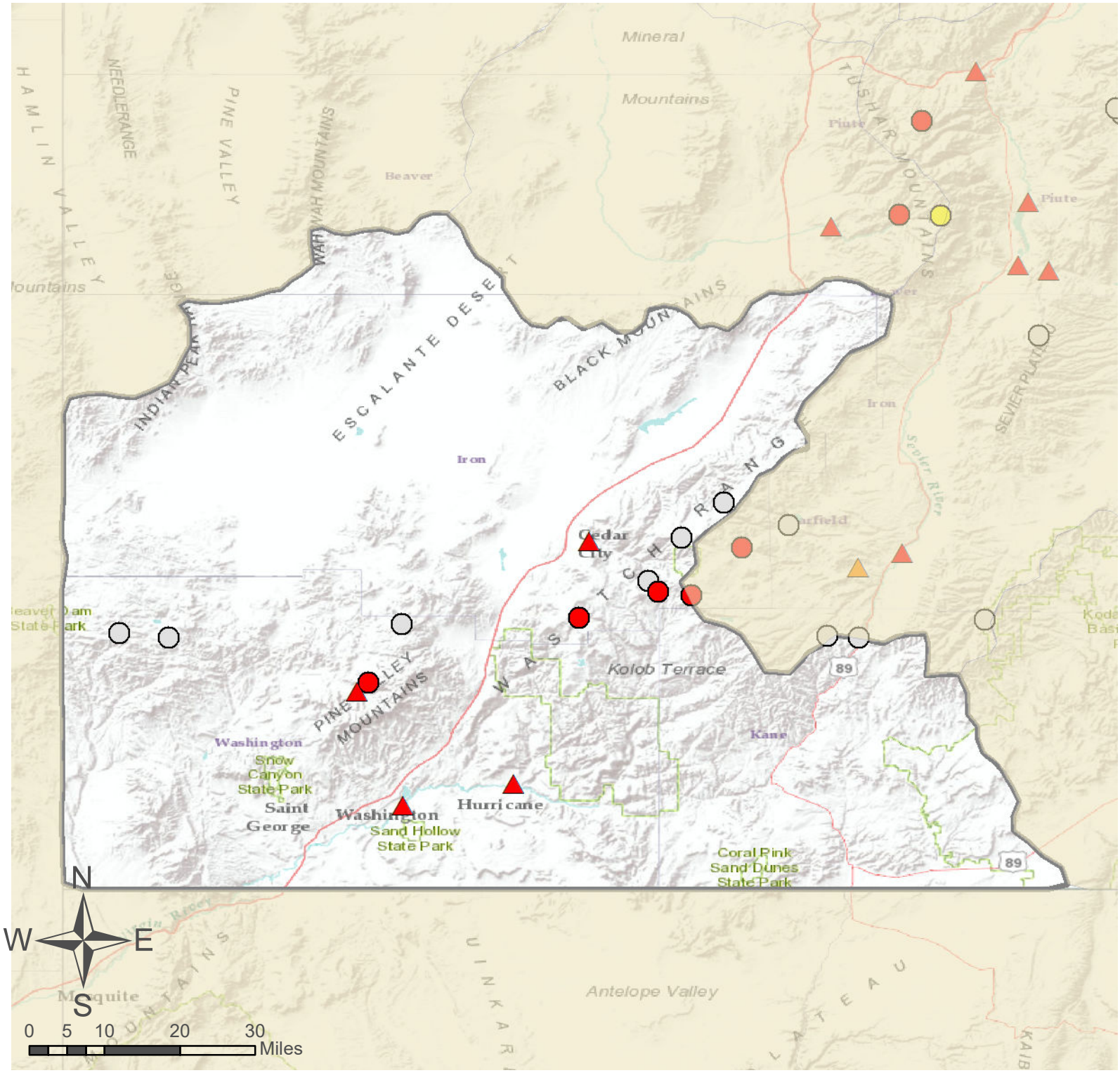
May 1, 2021

Surface Water Supply Index

Basin or Region	Apr EOM* Storage	MAY-JUL Forecast	Storage + Forecast	Percentile	SWSI#	Years with similiar SWSI
	KAF^	KAF^	KAF^	%		
Virgin River	**35.09**	**11.58**	**46.67**	**7**	**-3.61**	**03, 14, 02, 15**

*EOM, end of month; #SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.





Southwestern Utah

SNOTEL Site

Forecast Point

% of Normal

- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
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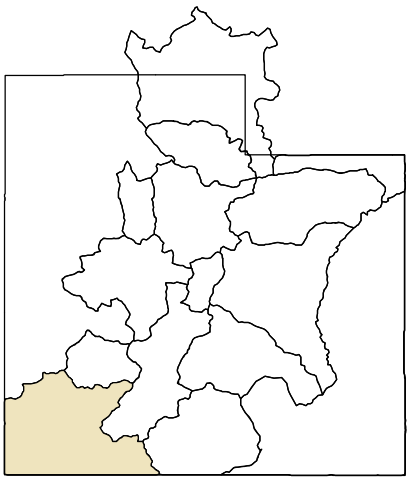
- 130 - 149%
- > 150%
- No Normal



As of May 1, 2021:

18% of Normal SWE

58% of Normal Precipitation

47% of Normal Precipitation Last Month

67% Saturation Soil Moisture

Southwestern Utah

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Salt Lake City, UT 84116
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Utah Water Supply Outlook Report

Natural Resources Conservation Service
Salt Lake City, UT